

INSIDE DOPE

Learn to live and laugh—
Thus delay your epitaph

By GEORGE
F. TAUBENECK

Stories of the Week
Add Political Stories
Gags of the Week
Motto of the Week
Advice for Today
Add Newspaper Stories

Stories of the Week

Simultaneously three men-of-the-cloth arrived at the Pearly Gates.

"What were you in earthly life?" St. Peter probed the first arrival. "A Methodist minister."

"Third line to your left. Wait your turn, please. And you, sir?"

"I was a Baptist preacher."

"Proceed straight ahead until you come to the laryngitis hospital."

"I was a Catholic priest," confidently stepped up Father O'Brien.

"Hurry over to the Main Auditorium. The bingo game begins in five minutes."

"This drought has got so bad," ananised a dust-bowler, "that the Baptists are sprinkling; the Methodists applying a damp cloth; and Lutherans are handing out rain checks."

"He's worth in the neighborhood of a hundred thousand dollars."

"Lead me to him. That's a mighty fine neighborhood."

Miss Twenty couldn't make up her mind about the sweater she was trying on at the Bon Ton Shoppe.

"Step outside," suggested the saleswoman, "and size it for whistles."

Add Political Stories

Retort Classique from one Frenchman to another:

Marshal Juin was quoted in a press statement:

"Mon Dieu. Le Presidente of Francais has no real powers—just tiresome chores."

Came back the then-President, M. Auriol:

"So true. Mais non. Now I can be relieved of one tiresome chore—seeing Marshal Juin."

Communist Commissar for Public Buildings was on his semi-annual inspection trip.

First stop: a school. It needed various repairs and additions. He granted it a stingy thousand rubles.

Next stop: a prison. Here he okayed a voucher for one hundred thousand rubles—to make various improvements.

Puzzled by the discrepancy, his aide asked why he had been so much more generous to a prison than to the institution of learning, which obviously needed help much more.

"Never again," explained the Commissar, "will I be in school, but . . ."

Gags of the Week

The moon not only pulls the oceans back and forth in the tides; it stops cars on side roads.—*Life Today*.

You should use statistics as a drunk uses a lamp post—for support rather than illumination.—*Schoolmaster*.

If women's intuition is so good, how come they have to ask so many questions?—*Pipe Dreams*.

(Concluded on Page 10, Col. 1)

ISSUED EVERY MONDAY AT 430 W. FORT ST., DETROIT 26, MICHIGAN. ESTABLISHED 1926.

AIR CONDITIONING & REFRIGERATION NEWS

THE NEWSPAPER OF THE INDUSTRY

Vol. 72, No. 10, Serial No. 1320

July 5, 1954

Reentered as second-class matter October 3, 1936 at the post office
Trade Mark Registered U. S. Patent Office. Copyright

\$6 Per Year
© 1954, Mitchell Mfg. Co.

What's the Weather for July?

Long-Range Forecast by Weather Trends Inc.
Says 'Hotter Than Usual' In Most Vital Areas

DETROIT—The weather is always important, front-page news, but it is more than that to those in the air conditioning and refrigeration industry, to whom the kind of temperature extremes reached in the late spring and summer months of the year can often mean difference between a highly successful selling season and a mediocre one.

With this in view AIR CONDITIONING & REFRIGERATION NEWS offers a new service to readers in the form of a long-range weather report. This has been prepared by Weather Trends Inc., 550 Fifth Ave., New York City, which supplies a detailed service for clients in industry, retailing, and agriculture. (The weather map and summary for July published in the NEWS is only a small part of the detailed report given to individual clients, which includes detailed climatological data and forecasts not only for areas, but for major cities as well).

Weather forecasting is never in the realm of a "sure thing" and forecasts can't be guaranteed but the experienced weather consultants at Weather Trends Inc. believe that there is an area of fore-

casting possible beyond the official Weather Bureau attitude that "the timing of weather events beyond a few hours is beyond present-day meteorological technique." The organization claims a batting average of .800 on its long-range forecasts, and points out that it said, in contradiction to some of the "official" predictions, for June that—

"warm intervals near mid-June (timing was specified in the detailed report) will reach high 90's . . . rainy and humid conditions at same time will favor air conditioner and electric fan sales."

July Forecast

NEW YORK CITY—Following is the July forecast by Weather Trends Inc. and explanation of its weather map (see below):

"Warmer than normal temperatures will prevail throughout the country with the exception of the Kansas area and northern California.

"Greatest departure towards hot will be in the South Atlantic states and once again, in the extreme Southwest.

"While the month of July will be generally more favorable to air conditioner and electric fan sales, the most important periods during the month are estimated (within a leeway of two days) as follows:

"Northeast—July 5-6, 12-17, 24-27
"Great Lakes—July 1-3, 10-14, 24-28
"Southeast—July 1-9, 14-17
"North Central—July 9-14, 26-31
"South Central—July 3-5, 14-24, 28-31
"Northwest—July 10-15, 26-31
"Southwest—July 10-12, 18-24

"A preliminary weather outlook for the month of August indicates warmer than normal temperatures over most of the country with the exception of the Great Lakes area."

* * *

Report from Field Says Room Cooler Sales Stay Ahead

CHICAGO—It is difficult to determine just how over-all sales of room air conditioners at retail stand at the present, but officials of Mitchell Mfg. Co., one of the leading producers, are optimistic at this time.

Based on reports of several company officials who have been out in the field, E. A. Tracey, vice president in charge of air conditioning, says that distributor-to-dealer sales are generally 20% or

Cities Try Co-op Study of Water Use In Cooling

Plan To Exchange Findings;
Dallas May Seek Further
Curbs on Evap Coolers

DALLAS—Dallas City Water Superintendent Karl Hoefel has announced that the city will co-operate with several other major cities throughout the country in a two-year study to determine the effect of air conditioning and lawn sprinkling systems on water consumption.

He said the city water department wants a breakdown of the two water-consuming categories because the impact of them has been tremendous and is reflected in the steadily increasing per capita use of water.

"We had dramatic evidence of that on two or three days last summer when we had showers," Hoefel recalled. Dallas then was (Concluded on Back Page, Col. 4)

ASRE To Meet In Seattle July 10-14

NEW YORK CITY—Fiftieth anniversary of the American Society of Refrigerating Engineers will be celebrated this month when the group meets for its 41st semi-annual meeting in the Olympic hotel, Seattle, from July 10 through July 14.

With the first two days taken up with committee meetings and social activities, the celebration will get under way officially at the Welcome Luncheon on Monday, July 12. Judge Matthew W. Hill of the Washington State Supreme Court will be the speaker on this occasion.

The society has arranged three (Concluded on Page 4, Col. 3)

Freezer Salesman Is Charged With Forgery

WARSAW, N. Y.—A grand jury investigation into an alleged multimillion dollar freezer food plan in Wyoming county has resulted in the following developments so far:

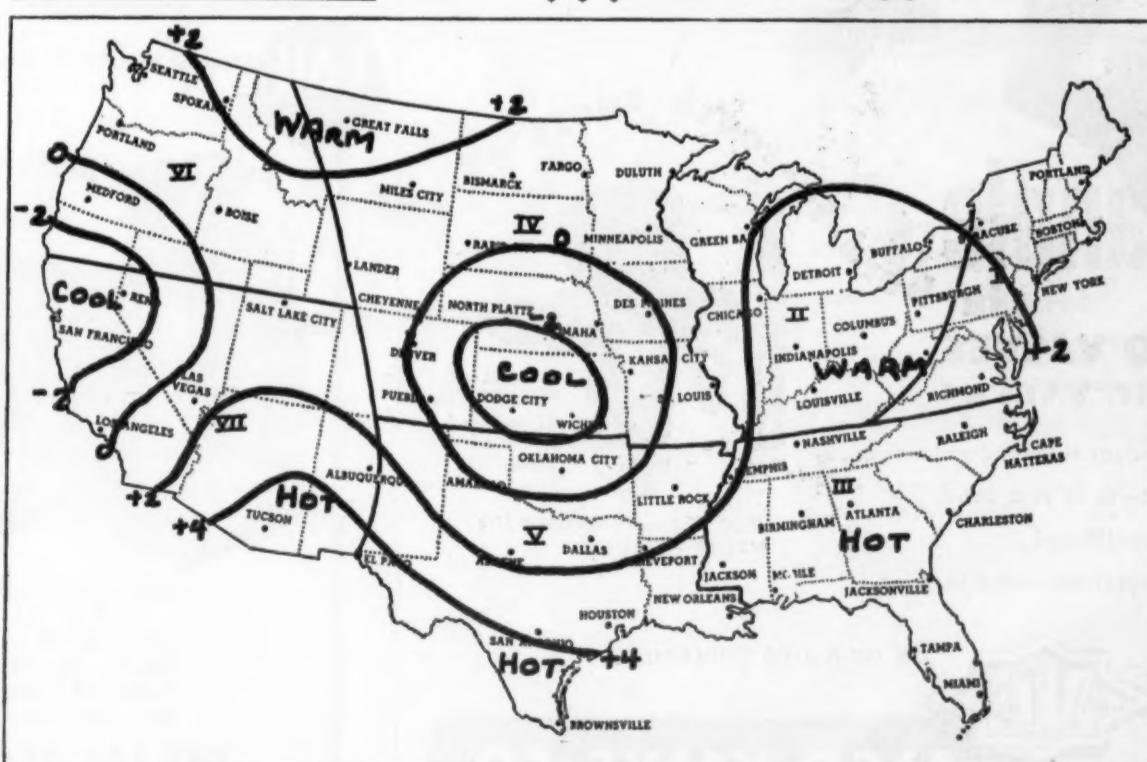
1. The arrest of a Buffalo food plan salesman on a second degree forgery charge and the issuance of three other sealed indictments that may lead to more arrests.

2. The prospect of similar investigations in at least four other western New York counties as new complainants to Wyoming District Attorney Julian R. Hanley are referred to district attorneys in their home counties.

3. A call by Hanley for state (Concluded on Back Page, Col. 1)

IN THIS ISSUE

NARDA Cost-of-Doing-Business Survey Shows Sales Up, Profits Down	6
Deluxe White Fluorescent Lights' Said To Cut Fading of Meats	8
Independent Grocers Plans Would Provide Lots of Work for Refrigeration Contractors	8
Walk-Ins, Cold Food Display Counters Lead Restaurant Market	10
Fine Cabinet Work Conceals Church Air Conditioning	11
Servicing Fountain Freezers	14
Low Temp Testing Chambers Aid Rubber Processing	18
What's New	16
Refrigeration Problems—Water Control Valves with Cooling Towers	20
Patents	22
Government Contracts	23



Figures at the end of the contour line represent the estimated deviations from normal monthly temperatures which are predicted for the month of July.

R. A. Patterson Elected B & G Vice President, To Open New York Office

MORTON GROVE, Ill.—Ralph A. Patterson, who has been general sales manager of Bell & Gossett Co. here for the past 11 years, was elected vice president at a recent meeting of the board of directors, the company has announced.

R. A. Patterson
Patterson will soon transfer to New York City where he will establish a new Bell & Gossett office.

In addition to supervising the New York office, Patterson will also be responsible for all of New England, eastern New York state, New Jersey, eastern Pennsylvania, and Delaware.

"Bell & Gossett's interest is continually being improved on the east coast by acquisition of manufacturing plants, engineering, and sales facilities, and this is the first consolidating link in this program."

Air-Cooled Market Opens

COLUMBIA, S. C.—Featuring year-round air conditioning, a new A&P supermarket has been opened at 2928 Devine St.

Most Wonderbars Used In Office, Den, Servel Finds

EVANSVILLE, Ind.—When automatic refrigeration moves out of the kitchen, where does it go?

An analysis of the first year's sales of Servel's portable electric Wonderbars shows that 35% of the refrigerettes sold are being used in offices, and 16.1% in recreation rooms or dens.

According to Neal E. Schuman, field sales manager of Servel, Inc., principal uses accounting for most of the other sales are:

Living rooms, 15%; bedrooms or nurseries, 12.2%; porches or patios, 7.7%.

Nearly 6% of all refrigerettes sold are being used in hotels or hospitals, and 3.5% in boats or on airplanes.

In which states are refrigerettes most popular? Sales figures show that they have been bought by consumers in every part of the country, but especially in California, where 21.7% of the first year's sales were made, and in Illinois, with 17.6%. New York state was third with 7.8%.

The No. 1 Wonderbar city is greater Los Angeles, where 10.1% of Servel's output has been sold. Other leading refrigerette cities are Chicago, which bought 9% of the total; New York City, 5.2%; Baltimore, 3.4%; Detroit, 3%; Miami, 2.6%; and St. Louis, 2.6%.

WASHINGTON, D. C.—An approximate average of 400 refrigeration and air conditioning units are operated at each base of the U. S. Air Force, William T. Smith reported at a recent meeting here of the Baltimore-Washington Section of the American Society of Refrigerating Engineers.

Smith is chief of the Refrigeration and Air Conditioning Section, Directorate of Installations, Headquarters, U. S. Air Force, and a member of the Baltimore-Washington Section.

Speaking on the subject "Refrigeration—World Wide," Smith pointed out that the Air Force recognizes the advantages and benefits of feeding its personnel with fresh foods. For that reason, he said, it requires refrigeration at all bases.

Austin's New City Hall To Be Air Conditioned

AUSTIN, Texas—Contracts totaling \$2,038,443 to build a new air conditioned, five-story city hall have been awarded and work on the project was scheduled to begin shortly.

Kieffer Plumbing Co. received a \$529,991 contract for air conditioning, plumbing, and heating.

So. Calif. RACCA To Discuss How To Get Trained Personnel at July 21 Meeting

LOS ANGELES—The needs of the refrigeration industry for trained personnel and how these needs can be met by cooperative efforts of all concerned will be discussed at a meeting of the Refrigeration and Air Conditioning Contractors Association of Southern California, Inc. in the Roger Young Auditorium here July 21.

Representatives of manufacturers, wholesalers, engineers, contractors, organized labor, and California school and college systems will conduct a round table discussion of the subject, "How to build rich blood for the industry," according to Henry Ely, executive secretary of the association.

MEMBERS OF ROUND TABLE

Members of the round table are Al Hanson, Drayer-Hanson, Inc.; Pete Askew, Thermal Products Co.; Gene Ballard, Refrigeration Fitters' Local 250; Arthur Hess, president of American Society of Refrigerating Engineers; Herbert S. Wood, director of the Los Angeles Trade-Technical Junior college; Norman Sharpe, head of the air conditioning and refrigeration department of California Polytechnic college; Harry L. Bowe, apprenticeship coordinator; Ralph Manns, president of RACCA So. Cal.; Herb Schuch, of Vernon Refrigeration Co.; Elmer Johnson, apprentice instructor of Consumers' Ice Co.; and Henry B. Ely, moderator.

SUBJECTS SCHEDULED FOR DISCUSSION

Some of the subjects to be discussed are: "On-the-Job Training for the Graduate Engineer," "Placement for Graduates of Schools and Colleges who have Specialized in Refrigeration and Air Conditioning," "Industry-wide Scholarships for the Promising," and "Review and Analysis of the Curricula."

The dinner-meeting is scheduled to begin at 7 p.m. It will be preceded by a cocktail hour at 6 p.m. Both members and non-members of the association are invited to attend.

Ely said that as a result of the meeting, the association would "formulate a policy to the end that our school facilities can be used to the utmost."

He commented, "Complete coordination of the educational facilities within the state of California must be obtained in order that through a selective process the best students may receive all around training.

"The association in recent

months has been in conference with representatives of our school and college systems to the end that our industry may develop a program for the full use of training facilities offered."

SUGGEST SHIFT IN EMPHASIS

He said that the association's trade advisory committee has suggested to the Los Angeles Technical-Trade college that the emphasis in its curriculum be changed from that of manipulative work to technical training.

"With more emphasis on technical training, the advisory committee feels that the industry can make better use of the graduates," he explained.

FTC Issues Complaint Against Vornado Fan Advertising Claims

WASHINGTON, D. C.—The Federal Trade Commission has issued a complaint charging O. A. Sutton Corp., Wichita, Kan., with false and misleading advertising of the "Vornado Turnabout Window Fan."

The complaint charges misrepresentation of the ventilating capacity of the Vornado model 30WI. Contrary to advertising claims made for the fan, the complaint says that:

1. When used as an exhaust fan, it does not have the capacity to ventilate to the extent of replacing 1,000 cu. ft. of indoor air per minute with a like amount of outdoor air.

2. When used as an intake fan, it does not have the capacity to ventilate to the extent of replacing 3,000 cu. ft. of indoor air per minute with a like amount of outdoor air.

According to the complaint, "the difference, if any, between the 'exhaust' and the 'intake' capacity" of the fan to ventilate a given area is "slight." It says the actual ventilating capacity of the fan is "considerably less" than the lowest rated capacity claimed by Sutton, this being the representation of 1,000 c.f.m. of exhaust capacity.

The practices are alleged to be "unfair and deceptive" in violation of the Federal Trade Commission Act.

The company has 20 days in which to file answer. The first hearing is scheduled for Aug. 10 in Washington before Hearing Examiner Abner E. Lipscomb.



easy to handle in hard-to-reach spots

ALCO 402 THERMO VALVES THE SMALL-FIXTURE VALVES

You install them in any position—upright, sideways, upside down.

They're small and compact—fit in your hand.

You save work and time!

Built-in pressure limiting device prevents motor burn-out.



ALCO 402—ENGINEERED FOR
SERVICE ENGINEERS

Freon-12—1/4,
1/2 and 1 Ton
Freon-22—4,
.8 and 1.6 Tons
Methyl Chloride
—1/2, 1 and 2 Tons



ASK YOUR ALCO WHOLESALER

ALCO VALVE CO.

853 KINGSLAND AVE. • ST. LOUIS 5, MO.

Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.

6030

LAU

You get Outstanding
performance high quality
and low cost...in

SERIES "A"
Blower
Assemblies



Heavy gauge steel housing. Strongest possible motor mounting, permits any motor location. 3-point suspension bearing bracket. Entire unit is die formed. Capacity range from 350 to 22,000 cfm. Many other features exclusive with LAU.
Write for Catalog Page 707-14

THE LAU BLOWER COMPANY
DAYTON 7, OHIO

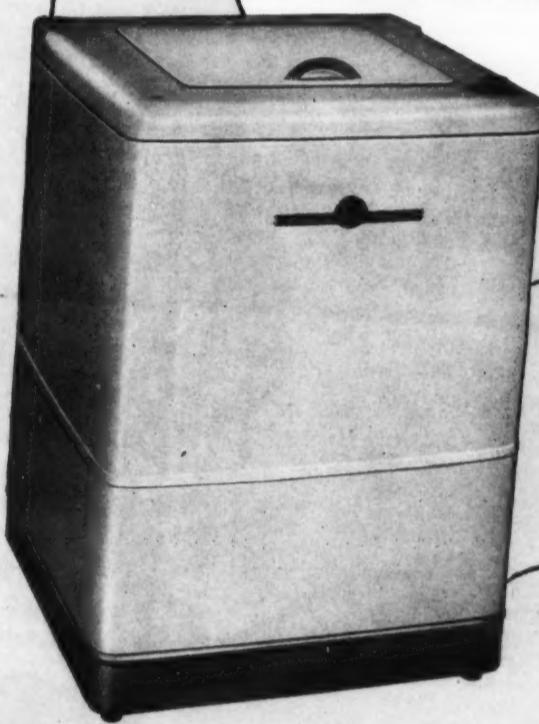
World's Largest Manufacturers of Air Conditioning Blowers

Here's Just the Sales Ticket...

★ for women who do not want a wringer washer...
★ yet think they can't afford a "fully automatic"...

NOW, NEW KELVINATOR SEMI-AUTOMATIC WASHER

with proven automatic washing features



You've got the answer in Kelvinator! New Kelvinator Semi-Automatic Washer—Full 9 lb. Capacity—"Shampoo Washing"—"X-Centric Cold Water Through One Hose. No permanent installation needed to demonstrate on your floor or operate in the home. Mobile base may be attached in minutes.

COMPLETES THE WASHER SALES PATTERN

Here's a sure-fire answer to the many housewives who don't want another wringer washer . . . who yearn for a fully automatic . . . but shy at the price. Here, too, is a step-up "natural" to bridge the gap from a wringer model to the fully automatic. It's a full 9 lb. semi-automatic . . . combines Kelvinator deluxe washing features with semi-automatic economy. Especially ideal for families that rent and don't want to spend money on a permanent washer installation.

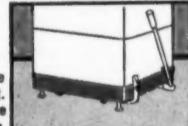
HAS ALL 3 GREAT WASHING FEATURES OF KELVINATOR'S FULLY AUTOMATIC MODELS



Now any Kelvinator Automatic Type Washer becomes MOBILE for only \$10!



Push the lever "down" and the casters go down. Now it's ready to roll anywhere out of the way.



Push the lever "up" and the washer is firmly on its feet. Operates anywhere there are faucet and drain outlets.

New caster assembly easily, quickly installed

What's Your Prospect's Washer Wish?



Model AWG Model SW (semi-automatic) Model WEP
In every price class a washer with demonstrable features, more washing ability and fewer service problems.

Kelvinator

ELECTRIC REFRIGERATORS • RANGES • HOME FREEZERS • WATER HEATERS • KITCHEN CABINETS AND SINKS • WASHERS • DRYERS
IRONERS • GARBAGE DISPOSERS • WATER COOLERS • ROOM AIR CONDITIONERS • DEHUMIDIFIERS • COMMERCIAL REFRIGERATION

Division of American Motors Corporation, Detroit 32, Michigan

March, April Freezer Refrigerator Sales Off '53 Record Highs

(See Tables on Pages 21 and 23)

NEW YORK CITY—Both refrigerator and freezer sales for March and April were down substantially from the same months of 1953, figures released by the National Electrical Manufacturers Association indicated recently.

The drop was accentuated by the fact that these two months last year were among the best of all time for both appliances. In fact, March, 1953 freezer sales set a record that had not been approached before or since and only two other prior months exceeded April 1953 sales figures.

March refrigerator sales were down 23% from the same month last year and April sales were down 24%. Sales for the first four months were 16% below the same period last year. NEMA firms sold 330,641 units in March, 280,900 in April, and 1,289,765 during the first four months of the year. This compared with 428,048 in March last year, 366,951 in April, and 1,519,651 in the first four months.

Sales of refrigerators to Canada have been very sharply down this year. In both months, they were down by more than 50%, while sales for the first four months are off 55% from last year.

Freezer sales in March were

down 54% from the record breaking month in 1953. NEMA manufacturers sold only 52,114 units this March as compared with 111,888 the year before. April sales rose to 64,297 units, but were still 28% below the 89,031 sold last year. Sales for the first four months totaled 216,022 units, 42% fewer than the 369,819 sold in the same period of 1953.

Again Canadian sales, which were also very high last year, plummeted the farthest, being as much as 70% below 1953 for the first four months.

Carson Pirie Scott Cools Women's Wear Floors

CHICAGO—The first of three phases in a \$1,250,000 air conditioning program for Carson Pirie Scott & Co.'s downtown department store was recently completed, John T. Pirie, Jr., president, has announced.

The first phase comprised the cooling of the second, third, and fourth floors of the State St. building and the fourth floor of the Wabash St. building. These house women's clothing departments. Cost of the 600-ton York unit amounted to \$333,000. Work has been in progress since March 11.

The other two phases contemplate a second 600-ton system and a 1,200-ton system. Main floor and basement of the State St. store have been cooled for 20 years.

Program for ASRE Meeting In Seattle--

(Concluded from Page 1, Col. 5)

technical sessions for Monday, Tuesday, and Wednesday mornings. Special sightseeing trips to points of interest around Seattle have been arranged for the afternoons.

Held concurrently with the Monday morning technical session will be a special Domestic Refrigerator Engineering Conference, which will have as its theme "An Analysis of Trends Affecting Domestic Refrigeration to 1960." E. T. Morton will be chairman.

Concurrent with the Tuesday technical session will be a special room air conditioning conference to consider problems of "our adolescent major industry."

As a special feature of this meeting, a series of four informal forums will be conducted on Tuesday afternoon for unrecorded group discussion of the following problems: "Oil Problems with 'Freon-22,'" "Capillary Tubes versus Expansion Valves on Commercial Self-Contained Air Conditioners," "Refrigeration Problems in the Meat Packing Industry," and "New Thinking on Short Form Air Conditioning Load Calculation."

The meeting will stand officially adjourned after the morning technical session on Wednesday. No special conferences are scheduled on that day.

The program for the meeting is as follows:

SATURDAY, JULY 10
Finance, Executive, and 50th Anniversary committee meetings.

SUNDAY, JULY 11
Committee meetings during the day.

Reception sponsored by the Western Canada section in the evening.

MONDAY, JULY 12

Morning:
First Technical Session: President A. J. Hess presiding, John Engalitcheff, Jr. chairman. "Design and Application of Mechanical Refrigeration Systems for Railroad Freight Cars"—C. F. Henney and D. C. McCoy, Frigidaire Div., General Motors Corp. "A User Reports on Mechanically Refrigerated Freight Cars"—R. W. Ransom, John Morrell & Co. "Mechanical Refrigeration vs. Ice for Railroad Shipments"—K. V. Plummer, Pacific Fruit Express Co. "Vacuum Precooling of Market Produce"—H. P. Hayes, California State Polytechnic college.

Domestic Refrigerator Engineering Conference: E. T. Morton chairman. "What Does Mrs. America Desire In Her Refrigerator?"—Miss Willie Mae Rogers, Good Housekeeping Institute. "Impact of Frozen Foods on the American Food Markets"—George L. Mentley, Birdseye Div., General Foods Corp. "Sales Challenge to the Domestic Refrigerator Industry." "The Industry Viewpoint—Engineering and Manufacturing"—A. J. Pfeiffer, Crosley Div., Avco Mfg. Corp.

Noon:
Welcome Luncheon: Speaker: Judge Matthew W. Hill, Washington State Supreme Court—"What Is Past Is Prologue." Presentation of section charters.

Afternoon:
Six-hour boat trip and salmon barbecue.

TUESDAY, JULY 13

Second Technical Session: Vice President Leon Buehler, Jr. presiding, F. Y. Carter chairman. "Thermal Conductivity of Commercial Insulations at Low Temperatures"—J. D. Verschoor, Johns Manville Research Center. "Using the Heat Flow Meter for Testing Low Temperature Insulating Materials"—J. T. Gier and R. V. Dunkle, University of California. "A Vapor Barrier of Mylar and Aluminum Laminate"—J. G. Macormack, Alumiseal Corp. Color Film: "Cold Storage Plant Construction by Precast Tilt-Up Method"—Owens-Corning Fiberglas Corp.

Room Air Conditioner Conference: H. L. Laube chairman. "Stimulating Acceptance through Continued Cooperation Between Power Companies and Designers"—C. E. Baugh, Pacific Gas & Electric Co. "Electric Resistance vs. Reverse Cycle Heating." "Opportunities for Improvements In Fan Motor Design"—Lyle Ramer, Marco Industries. "Opportunities In Compressor Design"—J. A. Galazzi, International Harvester Co.

Afternoon:
"Oil Problems with 'Freon-22.'" "Capillary Tubes vs. Expansion

Valves on Commercial Self-Contained Air Conditioners." "Refrigeration Problems In the Meat Packing Industry." "New Thinking on Short Form Air Conditioning Load Calculation."

Inspection trips.

Golf tournament.

Evening:

Cocktail party and dinner dance.

WEDNESDAY, JULY 14

Morning:

Third Technical Session: Vice President C. M. Ashley presiding, F. P. Neff chairman. "Removal of Salt from Sea Water by Freezing"—T. G. Thompson and K. H. Nelson, University of Washington. "Determining Pressure Drop In 'Freon' Systems"—W. L. Holladay, Holladay & Westcott. "Overload Protectors for Hermetic Compressors"—E. W. Scott, Westinghouse Electric Corp. "Air Conditioning by High Velocity Air Distribution"—Fritz Honerkamp, Anemostat Corp. of America.

Hinky-Dinky Stores Adds Frozen Foods Specialist

OMAHA, Neb.—Hinky-Dinky Stores Co., with headquarters here and 34 supermarkets in Nebraska and Iowa, has retained Frank P. Gibilisco as a specialist in merchandising frozen foods, it was reported by Ted A. Newman, merchandising manager.

Gibilisco also will be working on relations with direct delivery suppliers and on merchandising problems such as improving frozen food and dairy products displays and sales.

Newman explained that the expansion of the company and particularly the outstanding growth of the frozen food department made it necessary to add a specialist to help do a better job for the retail outlets.

IDEAL
Speed-Freeze
PRODUCTS

**BEVERAGE COOLERS AND
INSTANTANEOUS DRAFT
BEER COOLERS.**
(With Refrigerated Faucets)

WRITE
IDEAL COOLER CORPORATION
2933 EASTON AVE • ST. LOUIS 6, MO

Redmond
MICROMOTORS
One of largest stocks
in the world!
FACTORY DISTRIBUTORS
CYCLO-FREEZ CORP.
NARVIN L. "FERGIE" FERGEBAD
P.O. Box #6, Dept. A, Mpls. 16, Minn.
Mohawk 9-6794

non-foaming Ansul oil reduces slugging and carry-over



Ansul Non-Foaming Refrigeration Oil reduces slugging and hammering within the compressor. Broken valves and other damaged parts are eliminated. Compressors run quietly too.

Non-foaming oil prevents excessive oil build-up in the evaporator due to carryover . . . makes it possible for the evaporator to work at peak efficiency, not restricted by a heavy insulating film of oil.

With Ansul Non-Foaming Oil in the compressor, vital parts get the instant lubrication they need to prevent wear.

Ansul Oil works on moving parts where it is needed most.

When you use Ansul Non-Foaming Oil, plugged capillaries become less of a danger and less strain is placed on oil separators. Specify Ansul Oil, get the important benefits of Non-Foaming Oil plus high lubricity and stability, low moisture and low wax. Write today for more information, ANSUL CHEMICAL COMPANY, Refrigeration Division, Dept. D-1, Marinette, Wisconsin.



ANSUL

We Want 5 Representatives To Sell SCHAEFER FROZEN FOOD CABINETS

Our new policy of forming the Frozen Food Cabinet Division of Schaefer, Inc. enables us to expand our sales organization. Five excellent territories are open for experienced, aggressive representatives. These territories are:

1. Tennessee, South Carolina, Georgia, Alabama, Mississippi, and Florida . . . 2. Washington, Oregon, Idaho, Montana, and Wyoming . . . 3. California, Nevada, Utah, and Arizona . . . 4. Eastern Wisconsin, Illinois, and Indiana . . . 5. Kansas, Missouri, and Colorado.

This 25 year old company, one of the country's leading low temperature cabinet manufacturers, has recently introduced a complete line of frozen food merchandising cabinets enjoying excellent reception from the trade. If interested, write to Frozen Food Cabinet Division, SCHAEFER, INC., MINNEAPOLIS 1, MINNESOTA.

N.Y. Appliance Dealers Ask Law Enforcement For Misleading Ads

NEW YORK CITY—A petition urging city officials to enforce laws pertaining to false and misleading advertising has been prepared by the Metropolitan Electrical Appliance Dealers Association.

Local appliance and radio-television dealers were being canvassed in an effort to obtain about 3,000 names, according to Gerard Nierenberg, association counsel. He said he hoped to present the completed petition to city officials before advertisers launch heavy summer ad programs.

The petition asks that city officials take all action necessary "to stop publication of advertisements as related to the retail electrical appliance and television industry which are of the following nature:

"Misleading, bait advertising, deceptive, fraudulent, improperly derogatory to competition, and harmful to the general public."

Nierenberg indicated he felt that the authorities would take action when so petitioned. However, he added, "in the event of extreme difficulties we could ask the court for a writ of mandamus in an effort to force the city to carry out the laws."

He referred to laws set forth in Section 421 of the Penal Code of New York City.

Kenrow-Georgia Opens New Branch In Savannah

ATLANTA — Kenrow-Georgia, Inc., distributor of Servel, Motorola, and Ironrite products throughout Georgia, has announced the opening of a new branch in Savannah to serve the eastern portion of the state.

Vance C. Woodcox, president of the company, appointed Bill Logan as vice president of the firm in charge of the new branch. Logan has been with the company since it started operations here in 1949.

Assisting Logan at Savannah will be Karl Methews, operations manager for the office and service center; Kent Woodcox, assistant operations manager; and Don Lacey, service manager.

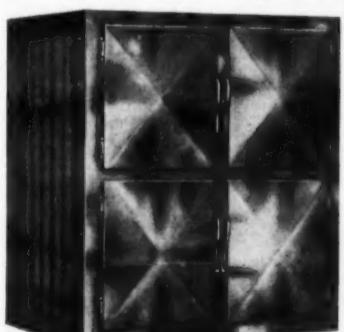
McCutcheon Distributes Deepfreeze In Pittsburgh

PITTSBURGH — McCutcheon Distributing Co., Inc. here has been franchised as distributor for Deepfreeze Appliance Div., Motor Products Corp., according to L. R. Walker, the manufacturer's manager of field sales.

McCutcheon will distribute the full line of Deepfreeze appliances in 23 counties in Pennsylvania, 14 in West Virginia, as well as five in Ohio.

Executives include Charles E. Klein, president, and William J. Price, sales manager.

"A Case of Cool Judgment"



**Stainless Steel
DRINKMASTER
MIX MODEL**

#4D60 Holds 60 Gals. Mixt.
#4D80 Holds 80 Gals. Mixt.
Upper Part for Food Storage.

**United Frigitor Engrs.
Menominee, Mich.**

Facts at Fingertips Card File Gives Selling Data to Retail Salesmen

EVANSVILLE, Ind.—Retail salesmen of Servel appliances will have pertinent facts about all models in the line literally at their fingertips with a new Servel "Fax-File" now available to distributors and dealers.

Lew Libby, director of retail sales development for Servel, Inc., describes the new sales aid as a series of 38 pocket cards, measuring 2 1/4 in. by 6 in. The cards are riveted together at one end by a binder post, which enables them to be opened fan-wise for easy reference.

Each of the cards represents a different appliance model manufactured by Servel, with the cards for each type of product printed on a different color stock. Thus, explains Libby, 19 models of gas and electric refrigerators are listed on orange cards, the portable electric Wonderbar refrigerette on a green card, six home freezers on salmon cards.

Room air conditioners are featured on six green cards, and gas and electric automatic water heaters on seven yellow cards.

Each card in the Fax-File contains a list of sales features on one side and the specifications of the model on the reverse, Libby further indicated.

Hirschberg Represents Jordon In Mich. Area

PHILADELPHIA—Walter Hirschberg of Detroit has been appointed sales representative to cover the Michigan area for Jordon Refrigerator Co., E. A. Terhune, vice president of the Jordon commercial division, announced.

He will handle both the commercial and domestic lines.

Hirschberg formerly worked as an agent in the hotel, restaurant, and institutional field. Prior to that, he was a radio and appliance distributor's representative in the Michigan area, after serving with the Armed Forces.

He succeeds John E. Mack, who has been transferred to the Jordon plant as field supervisor.

Mathison To Represent Coolerator on West Coast

DULUTH, Minn.—Appointment of Stanley R. Mathison as Coolerator regional sales manager was announced by Gerald L. Hartman, director of sales and advertising of the Coolerator Co.

Mathison was formerly west coast sales manager for the Mullins Corp. and more recently represented the Murray Corp. as a regional sales manager in the New England territory.

Mathison will make San Francisco his headquarters.

Westinghouse 'Packaged' Deal Aimed at Newlyweds

MANSFIELD, Ohio—A new summer promotion, the "Newlywed Appliance Special," was announced here recently as part of the "Westinghouse Guaranteed Value Trade-In Program" by the Westinghouse Electric Div.

"We know that some newlyweds do not have the money to buy all new appliances so we are giving our dealers a promotion to help them sell trade-in appliances to this market," R. J. Sargent, manager of major appliances, reported.

It is recommended by the company that a Newlywed Appliance Special be a package deal consisting of one new appliance and two used ones. For example, this might be a new refrigerator and a used range and washer.

"By keeping the price below \$400 and offering the buyers credit terms plus the 'trade back' offer, this sort of special is within the reach of most all newlyweds," it was pointed out.

According to Sargent, the advantages of such a plan are: first, if the dealer does not carry his own finance paper, the package deal makes the price of trade-in appliances high enough to make the paper attractive to the bank; secondly, the trade back offer gets these buyers to return when they are in the market for new appli-

ances; and finally, it helps the dealer move his used appliances.

The display material available to dealers to back up this promotion includes point of sale pieces such as banners, pricing and guarantee tags, pricing cards, and window display material.

'Ease of Use' Key to Selling Women New Home Appliances, Woman Editor Tells AIEE

NEW YORK CITY—"Women won't use home appliances unless they are easier to use than not to use," said Bernice Strawn, home equipment editor of the *Woman's Home Companion*, in a speech at the recent annual meeting of the American Institute of Electrical Engineers.

Speaking on the topic, "Appliance Problems from the Customer's View," she pointed out that women require appliances which are easy to clean, easy to use, do the job well, as well, or better than other methods, save time and attention, and fit into space available.

"But the simplest test to size up an appliance is to determine if it's easier to use or not. If a woman has to learn to use it, practice with it, or do several preliminary steps, she'll be inclined to stick to her old methods."

Miss Strawn gave the engineers numerous suggestions for practical improvement of appliances.



Rust Proof • Freeze Faster • Defrost Faster

BOHN ALUMINUM EVAPORATORS provide greater efficiency, trouble-free service. Since aluminum is an excellent heat conductor, Bohn evaporators freeze faster—at less operating cost—defrost faster as well. Lightweight, rustproof Bohn evaporators are also non-toxic to assure greatest possible food protection.

Investigate the many advantages of a Bohn aluminum evaporator built to your specifications.

EVAPORATORS • FREEZER PLATES • TUBING • COILS & CONDENSERS

BOHN ALUMINUM AND BRASS CORPORATION

1400 LAFAYETTE BUILDING • DETROIT 26, MICHIGAN

Sales Offices: BOSTON • CHICAGO • CLEVELAND • DAYTON • DETROIT
INDIANAPOLIS • LOS ANGELES • MILWAUKEE • MINNEAPOLIS • NEW YORK
PHILADELPHIA • ROCHESTER • ST. LOUIS



BOHN ALUMINUM EVAPORATORS provide greater efficiency, more dependable service.

NARDA '53 Cost-of-Doing-Business Survey Shows:

Dollar Sales Up 2.7%; Dollar Profits Down 22.8%;
Service Costs and Trade-In Losses Take Big Jump

CHICAGO — Although dollar sales of the majority of dealers participating in the National Appliance & Radio-TV Dealers Association's 1953 costs-of-doing-business survey increased 2.7% over 1952, dollar profits declined 22.8%, according to the survey report.

This eighth annual study also revealed that net profit ratio to net sales of reporting dealers in 1953 dropped from 3.2 in the previous year to 2.3—the lowest return on record.

Other major findings of the survey:

Television, refrigerators, and washers were 1, 2, and 3 in the sales standing. Dealers expect these products to finish in the same spots this year.

Service costs made a spectacular rise as did trade-in losses.

Total cost of goods sold dropped to 67.1 from 68 in 1952, but costs of merchandise (excluding service) rose 0.4 ratio points to 70.2, second highest merchandise cost ratio on record.

Total gross margin (including service) rose 0.9 ratio points above 1952 but merchandise margin dropped 0.4 points, only 0.1 points off the record low of 1951.

Total operating cost ratio reached a new high at 30.6 of net sales, up 1.8 ratio points from 1952.

Expect Decline In '54

A majority of the dealers expect declines in both dollar sales and dollar profits in 1954.

Dealers listed the general economic situation, price cutting, inadequate discounts from manufacturers, and trade-in problems as chief obstacles for 1954.

Survey data was compiled and analyzed by Richard E. Snyder, consulting economist.

The report noted that in previous survey reports "we have alluded to the fact that the participating NARDA dealers warranted 'above average' rating because of their superior sales performance by comparison with all U. S. appliance-radio-TV dealers.

"But in 1953 it was different. Sixty-three per cent of all reporting dealers gave comparative dollar sales and profit figures for both 1953 and 1952. (This majority group accounted for about 70% of the aggregate sales volume of all participants.)

"And the figures show that these

dealers accomplished a 1953 sales increase of only 2.7% over 1952, whereas, according to Department of Commerce retail sales reports, the increase for all U. S. appliance-radio-TV dealers was 8.7%.

"(Only 6 out of 10 NARDA dealers showed larger dollar sales in 1953 than in 1952, whereas in 1952 8 out of 10 had dollar sales gains over 1951.)

"The question naturally arises: Does this result mean that the NARDA dealers have lost their 'above average' status? Probably not.

"For one thing, the previous appraisal has considered sales performance only. We don't know how all the other dealers fared in terms of such things as gross margins, total operating costs, and net profit ratios, and in terms of a hundred other exogenous factors affecting their business.

63% Show Decline of 22.8% In Dollar Profits

"But we do know that the 63% majority group of NARDA dealers had a decline of 22.8% in total dollar profits in 1953 by comparison with 1952.

Table 1—Appliance Sales Breakdown by Product Type

Appliance	1953	1952	1951
Total	100.0	100.0	100.0
TV, radios, & record players	39.2	30.8	27.5
Television	†	3.3	2.8
Radios	16.7	19.0	17.9
Refrigerators	14.8	15.9	19.4
Washers	8.3	9.8	10.1
Ranges—Total	8.3	9.8	10.1
Electric	4.9	—	—
Gas	3.4	—	—
Kitchen Equipment	4.3	2.3	—
Dryers	2.9	2.0	2.7
Freezers	2.8	3.1	2.5
Air conditioning	2.5	1.5	0.7
Vacuum cleaners	1.1	1.4	0.9
Other major appliances	3.8	—	—
All small appliances	3.6	3.8	5.5

*Television reported as single product group in previous years.

†Radios reported as single product group in previous years.

Not comparable with previous years' data.

inventory turnover at a new high. It said:

"The reporting group of NARDA dealers showed total inventory valuation 8.4% higher at the end of 1953 than at the beginning of the year. This was a marked contrast with the results for 1952 when year-end inventories were valued at 15.3% below the year's starting level.

"Viewing the 1953 rise of only 2.7% in dollar sales, the 8.4% increase . . . suggests the possibility of more cautious buying by dealers during the early part of 1954, pending clarification of the general sales outlook.

"Inventory turnover in 1953 was at a rate 4.8 times, the highest ever recorded in a NARDA survey. The 1952 rate of 4.4 was the previous peak."

Another survey finding was that sales per square foot of selling space declined slightly. In 1953 the reporting NARDA dealers averaged \$101 sales per square foot compared to \$104 in 1952.

"Increasing participation of big-volume dealers in the surveys for both years has raised this measure to a level somewhat out of line with the figures for years prior to 1952," it was noted.

Operating Costs and Profit Ratios

Operating cost and profit ratios for the whole group of NARDA dealers who reported in the 1953 survey are set forth in Table 3. Discussing highlights of the 1953 national operating ratio structure, the report said, in part:

"We know personally that a great many of the NARDA dealers are highly respected operators of large caliber. . . .

"It is just possible that their 'inferior' showing, saleswise, in 1953 (by comparison with the national result as reported by the Department of Commerce) can be explained by the outlandish degree of price cutting on the part of thousands of fringe operators whose concept of sound business practice leaves much to be desired.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953 sales by main product groups (see Table 1), the report stated:

"Although the dealer reports on TV sales were combined, for the first time, with reported radio and record player sales, it is quite certain that, of the combined percentage of 39.2%, the TV position was sufficiently large to have surpassed the 1952 television sales share of the total, which was 30.8%.

"It does appear that the NARDA dealers as a group have been a target for many desperate snipers who have thrown caution to the winds."

Regarding the percentage breakdown of 1953

Table 2—Trade-In Per Cent to Unit Sale of Five Key Items

Appliance	1953	% of Sales	1952	1951	1950	1949	1948	1947	1946
Refrigerators	68	69	56	42	35	18	11	3	
Washers	65	62	52	49	41	27	19	4	
Ranges	60	50	40	36	26	16	9	2	
Vacuum cleaners	32	31	28	36	31	22	26	10	
Television	27	17	15	13	—	—	—	—	

Table 3—National Operating Cost and Profit Ratios

Line	Item	1953	1952	1951	1950	1949	1948	1947
1.	Net sales (merchandising plus service)	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1-a.	Net sales (merchandise only)	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2.	Cost of goods sold (mdse. plus service)	67.1	68.0	68.8	69.2	67.2	68.7	67.0
2-a.	Cost of goods sold (mdse. only)	70.2	69.8	70.3	69.7	68.8	70.2	67.8
3.	Gross margin (mdse. plus service) (line 1 minus line 2)	32.9	32.0	31.2	30.8	32.9	31.2	33.0
3-a.	Gross margin (mdse. only) (line 1-a minus line 2-a)	29.8	30.2	29.7	30.3	31.2	29.8	32.2
4.	Total operating costs (A thru E below)	30.6	28.8	28.3	24.8	27.6	26.7	26.2
A. Administrative		21.2	20.6	20.4	16.9	19.1	18.6	18.2
(1) Owners and/or mgrs' salaries		3.4	3.6	4.1	3.6	3.5	3.5	NS
(2) Office salaries		2.2	2.1	1.6	1.5	2.0	1.8	NS
(3) Salesmen's pay		5.6	5.7	5.6	4.8	5.5	5.5	4.8
(4) Servicemen's wages & expenses		6.0	5.1	5.7	4.5	4.7	4.7	4.1
(5) Vehicle expense		2.4	2.4	1.8	1.4	1.7	1.7	NS
(6) Other administrative expense		1.6	1.7	1.6	1.1	1.7	1.4	NS
B. Occupancy expense		2.5	2.5	2.5	2.6	2.6	2.8	3.0
C. Advertising expense		2.5	2.6	2.7	2.2	2.5	2.6	2.1
D. Bad debt losses		0.4	0.2	0.1	0.3	0.2	0.2	0.2
E. All other expenses		4.0	2.9	2.6	2.8	3.2	2.5	2.7
5. Net operating profit (line 3 minus line 4)		2.3	3.2	2.9	6.0	5.2	4.6	6.8

Table 4—Special Analysis of Expense Detail

	Ratios to Net Sales	% of Total Expense	
		1953	1952
Total personnel, operating expense & losses	30.6	28.8	100.0
Personnel expenses	18.4	18.0	60.2
a-Owners and/or mgrs' salaries	3.4	3.6	11.6
b-Office salaries	1.9	2.1	6.8
c-Salesmen's pay	5.6	5.7	18.4
d-Servicemen's wages & expenses	6.0	5.1	19.5
e-Deliverymen's & warehouse men's wages	1.2	1.2	4.0
f-Employer's share social security & unemployment compensation	0.3	0.3	1.0
Operating Expense	9.4	8.9	30.7
g-Light & heat	0.4	0.4	1.4
h-Janitor service	0.2	0.13	0.5
i-Rent	1.3	1.3	4.4
j-Property taxes, etc. on real estate	0.5	0.4	1.5
k-Vehicle maintenance	0.8	0.9	2.7
l-Advertising	2.5	2.6	8.1
m-Office supplies	0.3	0.4	1.1
n-Credit & trade information	0.04	0.06	0.1
o-Collection costs	0.06	0.01	0.2
p-Misc. administrative expense	1.1	1.1	3.7
q-Taxes (except on property)	0.5	0.6	1.8
r-All other expenses	1.6	1.0	5.2
Losses	2.8	1.9	9.1
s-Building depreciation	0.1	0.2	0.5
t-Vehicle depreciation	0.4	0.4	1.2
u-Shop equipment depreciation	0.2	0.2	0.7
v-Trade-in losses	1.3	0.6	4.4
w-Bad debt losses	0.4	0.2	1.2
x-Interest	0.4	0.3	1.2
			1.0

Cost-of-Doing-Business Survey--

(Concluded from preceding page) sold): Gross margin in 1953 was 32.9% of net sales, up 0.9 ratio points from 1952 on the strength of the decline by the same amount in cost of goods sold. This was the highest gross margin figure since 1949.

"However, gross margin on merchandise only, i.e., after excluding service, was only 29.8 in 1953, and this represented a drop of 0.4 ratio points from 1952.

"Total operating costs (the sum of the operating cost ratios for all specific expense elements listed in the survey schedules): In 1953 the reporting NARDA dealers experienced operating costs totaling 30.6% of net sales. This sets a new high.

"Administrative costs: Total administrative costs reached the highest level in NARDA cost survey history. The ratio of 21.2% to net sales was 0.6 points above the 1952 figure (20.6) which was the previous high.

Salesmen's Pay

"3. Salesmen's pay (includes salaries, commissions, draws, overrides, bonuses, prizes, and expenses): Salesmen's compensation in 1953 drew 5.6% of each net

sales dollar compared to the record high of 5.7% in 1952.

"4. Servicemen's wages and expenses: Servicemen's take in 1953 bounced back to a new high of 6% to net sales, after having declined to 5.1 in 1952 from 5.7 in 1951. The 1953 result marked the second time that the service payroll ratio has exceeded the salesmen's compensation ratio.

"Net operating profit (obtained by deducting the total operating expense ratio from gross margin): The group of reporting NARDA dealers obtained a net profit of 2.3% on new sales in 1953 compared to 3.2% in 1952.

"The reason for the drop of 0.9 ratio points was the rise of 1.8 points in total operating expense offsetting the decrease of 0.9 points in cost of goods sold. Thus the 1953 ratio dipped well below the previous bottom of 2.9 which was reached in 1951.

"In the 'recession year' of 1949 the NARDA dealers came up with a net profit ratio of 5.2%. Maybe (?) today's 2.3% realization is just as good, considering the higher sales level now, but with the example of only 4 out of 10 NARDA dealers showing bigger dollar profits in 1953 than in 1952 it becomes clear that today's

higher costs are strongly offsetting the effect of rising sales."

A more intensive detailing of individual expense items was inaugurated with the 1952 survey schedule and NARDA now is able to present the first year-to-year comparisons based on the special breakdowns shown in Table 4.

Commenting on some of the more interesting findings, the report pointed out that losses totaled 2.8% of net sales in 1953 against 1.9 in 1952, "the main reason for this big jump being the doubling of the trade-in loss ratio."

Chief Operating Problems

Dealers were also polled concerning the conditions that prevailed in the survey year, and prospects for the year ahead. Regarding main operating problems in 1953, the report said:

"Although the list of mentions of specific problems was led by the number of references to various facets of the trade-in situation, price cutting takes first place if we combine the mention of price cutting, as such, with those relating to 'discount houses,' consumer demands for 'give-aways,' and the like.

"'Back-door selling' by distributors, with heavy emphasis on sales to builders, came third on the list of mentions. Fourth was the subject of low margins allowed dealers by manufacturers. Lack of good salesmen was fifth in frequency of mention."

Other factors mentioned were: unfavorable local economic conditions; consumer sales resistance; too many manufacturer promotions and give-aways; the "no-down-payment" racket; uncertainty about color TV; TV market saturation; over-franchising by manufacturers; consumer credit problems; competition from utilities; high service costs.

Obstacles for '54

"General economic conditions" led the list of main obstacles seen for 1954, with price cutting in second place. "Inadequate discount from manufacturers" was third, and the trade-in problem was a close fourth.

Others were: Consumer sales resistance; shortage of good salesmen; customer credit status; over-production by manufacturers; too many TV promotions by manufacturers; "public waiting for color television"; liquidation of warehouse stocks and dumping of distress merchandise; sales training.

Seventy-two per cent of the reporting dealers gave specific indications of their total dollar sales expectancy in 1954 by comparison with 1953. Of these, 20% expect no change; 35% expect increases, averaging 14% over 1953; and 45% expect declines averaging 19%.

A majority of the participating dealers gave television the largest number of individual mentions in the total list of products with best

sales prospects for 1954, but a combination of the various laundry equipment items would put this group of products in the lead, the report said, adding:

"However, on the basis of individual product mentions, refrigerators came second, with washers (including automatic) third. Ranges were fourth. Air conditioning jumped to fifth place from sixth a year ago."

Other items lined up as follows: Dryers, kitchen equipment, freezers, record players and records, and dishwashers.

Fifty-eight per cent of the dealers ventured guesses as to 1954 dollar profit realizations in comparison with 1953. Thirty per cent expect no change; 28% foresee increases, averaging 18%; and 42% expect declines, averaging 19%.

Printed copies of the survey will be available soon and may be secured at \$1 per copy (quantity prices on request) from the offices of NARDA, 1141 Merchandise Mart, Chicago 54, Ill.

Quicfrez Names Ashley

Distributor In Columbia, S. C.

COLUMBIA, S. C.—The Ashley Distributing Co., Inc., P. O. Box 868, Columbia, South Carolina, will become a distributor for Quicfrez, Inc., producer of refrigerators and freezers, it was announced by Harry Ryan, vice president in charge of sales for Quicfrez.

In Parade

Of the 100 Largest National Advertisers These Used Parade in 1953

Admiral Corp.

American Home Products Corp.

American Tobacco Co.

Armour & Co.

Avco Mfg. Co.

Block Drug Co., Inc.

Bristol Myers Co.

Calif. Packing Corp.

Chrysler Corp.

Colgate-Palmolive-Peet Co.

Corn Products Sales Co.

Helene Curtis Industries, Inc.

Ford Motor Co.

General Electric Co.

General Foods Corp.

General Mills, Inc.

General Motors Corp.

Hunt Foods, Inc.

International Cellucotton Products Co.

Johnson & Johnson

</

'Deluxe White Fluorescent Lights' Cut Fading of Meats from Bright Lighting

CHICAGO—At least a partial answer to the problem of meats fading from bright light radiation lies in the use of a new "deluxe white fluorescent light," Ben Avery of the General Electric Co. told IGA store engineers recently.

"Deluxe white fluorescent light looks like standard white fluorescent light but it has radiation in it that retains color in foods," Avery explained. "There is no need to fear the color distortion found in standard white."

"In general, the deluxe cool white light does the best over-all job for the food store," he said. "It intensifies reds, greens, and yellows without any change in white."

Thus, meat displayed under cool deluxe light will appear to have a more full-bodied red than the same meat under standard white light, he said. He pointed out that for meat display, the cool light is better than the warm light because the warm gives a greater intensity to yellow, which makes the fat in meat appear to be a bit off-color.

While intensifying the color, the deluxe lamps cut down on brightness, for it takes four deluxe lamps to produce the same brightness as three standard lamps.

Avery noted that the difference

in light does not affect the meat in any way, except to make it look more presentable. This leads to faster turnover and faster turnover means less faded meat, he reasoned.

Avery declared that the same color intensity also applied to produce and dairy displays, and makes the products look more appetizing.

While admitting that the brighter the light, the more rapid the fading of the products displayed, Avery reminded the store engineers that lighting helps to sell the food.

It is up to the individual store owner to determine whether the increase in turnover induced by brighter lighting more than offsets the fading caused by the brightness.

He pointed out that lighting helps merchandise food by directing traffic through light alignment, attracting people to the rear of the store by putting brighter lights there, spotlighting specials, and creating atmosphere in the store.

With self-service stores getting up to 100 ft. candles in light power these days, he emphasized that engineers must give serious thought to light loads in figuring air conditioning.

Store Engineering and Proper Refrigeration Practices Are Outlined

The Independent Grocers Alliance of America, which includes some 5,000 independent retail grocers of all sizes, recently invited the store engineers of member wholesalers to Chicago to get the latest information on how to increase store profits through modernization.

As much of this information directly concerns the commercial refrigeration distributor and dealer, on whom these store engineers will rely for much of their work and ideas, the News is presenting in this and succeeding issues an extensive report on what speakers had to say at this meeting, on subjects which affect the market for food store equipment.

Further articles will appear in future issues of the News.

Trane Names Shimanski To Madison Sales Office

LA CROSSE, Wis.—The Trane Co., manufacturing engineers of air conditioning, heating, ventilating, and heat transfer equipment, has announced the appointment of S. Thomas Shimanski to a new branch sales office in Madison, Wis. This sub-office of the firm's La Crosse sales office is located at 402 Palamino Lane.

Commercial Refrigeration

Plans of Independent Grocers Alliance Would Assure Refrigeration Contractors Plenty of Work During Next Ten Years

CHICAGO—There is going to be plenty of work during the next decade for refrigeration and air conditioning contractors if the Independent Grocers Alliance of America realizes its ambitions.

Don Grimes, president, told some 75 IGA store engineers and wholesalers from 28 states and two Canadian provinces attending a store engineering clinic here recently that IGA's aim is "10,000 stores averaging \$10,000 per week within 10 years."

This objective would double the size and volume of IGA members today. "It's a heck of a job," Grimes admitted. "But there are two ways to do it.

Remodeling and More Remodeling

"One is to get the grocer to remodel, then remodel again, and then remodel some more until he has to expand into a new store in a good location.

"The other is to back up this expansion with the right kind of promotion and advertising."

To attain this objective, IGA wholesalers are going to have to step up their store engineering activities to a much greater degree, particularly in areas where retailers are weaker, he said. "It is up to us to inspire small retailers who just don't seem to get on the beam to better themselves" rather than writing them off, Grimes said. "We've got to spend more time and effort on the little fellow."

Two-fold purpose of store engineering, he pointed out, is to make the store more convenient—easier for the customer to shop—and to get greater production per person in the store.

Other speakers during the two-day clinic told the store engineers how these purposes could be ob-

tained through more and better use of refrigeration equipment, air conditioning, lighting, and improved layouts of both back room and selling areas. The services that a good refrigeration contractor could perform for the retailer in attaining these objectives were stressed.

Relocation Emphasized

Particular emphasis was laid on getting the independent grocer to relocate on a site where he has plenty of room for off-street parking and future expansion of the store, on the use of pylons as a means of prominent identifications, on setting grocery islands at a 60° angle to the store front, on the use of self-service cases, and on streamlining back room operations.

W. H. Longenbaker, director of store engineering for IGA, outlined for the group some of the plans IGA has for the "store of the future." They sound radical today, but in 10 years they will be commonplace, he predicted.

One of the big time wasters today, he said, was the numerous handlings that products must go through between back door and front door. He estimated that the average product is handled seven times in the retail food store.

Frozen Foods Packaging

"What is wrong with the manufacturer packaging his product in plastic containers which can be set up in the store and the product sold right out of it?" Longenbaker asked. This, he pointed out, would eliminate shipping cartons, the need for constant restocking of shelves, and the problem of getting rid of empty cartons. He believed that the products could be packaged in units which the consumer

(Concluded on next page)

Exclusive in the rugged McQuay Evaporative Condensers

FOR FREON-12, FREON-22 AND METHYL CHLORIDE



The heart of the McQuay Evaporative Condenser is the exclusive pan-type water distributor mounted over the all prime surface copper coil, designed to provide a liberal water flow over the coil with a small pump motor.

Plenty of water flow means a clean, efficient coil; low horsepower means economy of operation. Coils are constructed and tested per ARI standards and are dehydrated and sealed following final test.

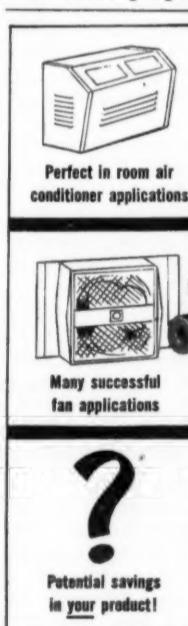
The combined action of the snap acting type of float valve, the pan type distributor and circulating pump provides for automatic water sweetening on each cycle.

For complete information on the thoroughness with which McQuay engineers designed a unit for efficient, long-lasting performance and ease of maintenance, see your McQuay refrigeration wholesaler or write for catalog No. 600, McQuay Inc., 1607 Broadway N.E., Minneapolis 13, Minn.

m:Quay



AIR CONDITIONING • REFRIGERATION • HEATING



Potential savings in your product!

LOOK CLOSELY
this new LOYD SCRUGGS
6-pole shaded pole motor may be your answer!

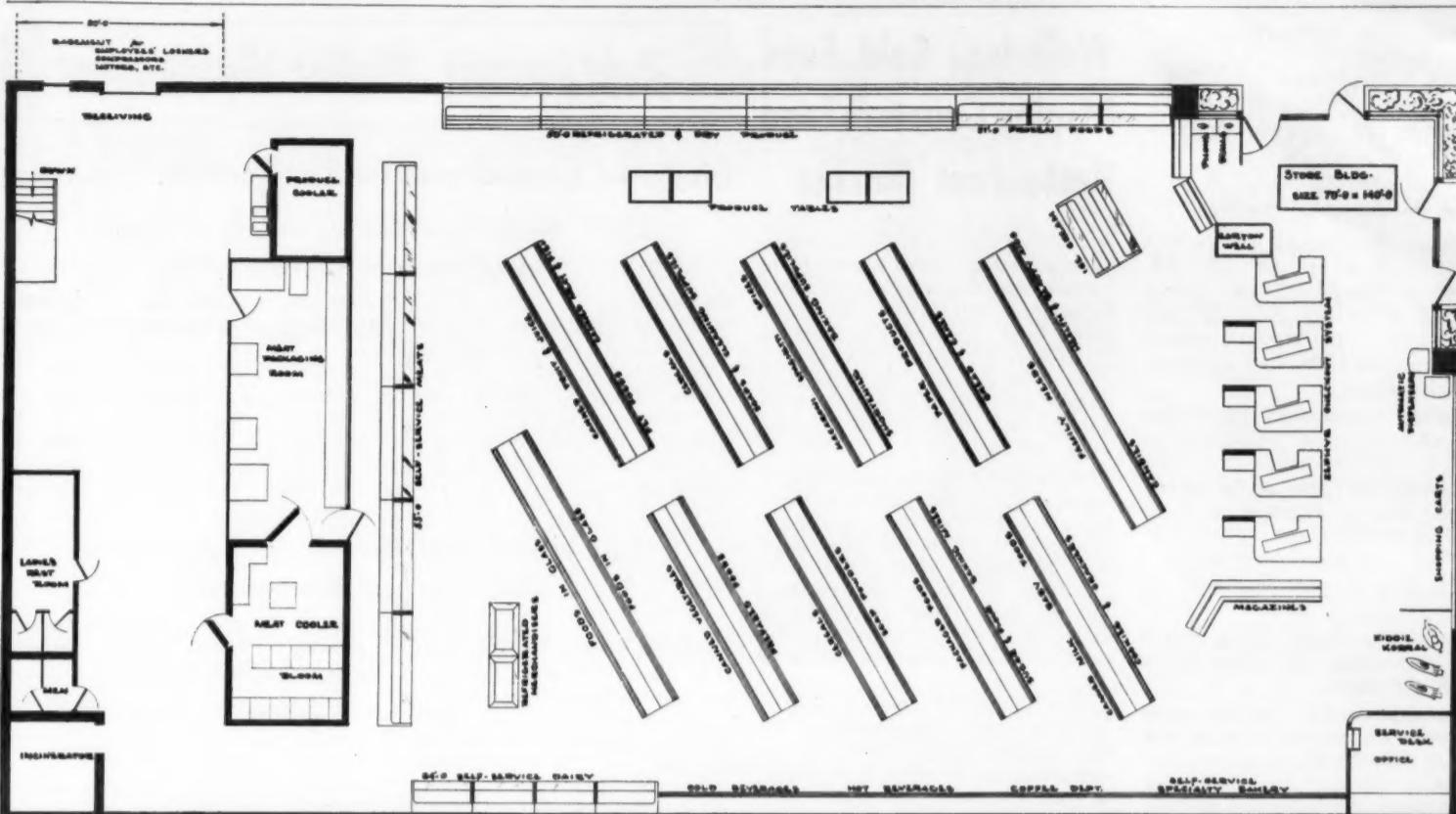
If you're looking for reliable custom-built motor service at stock motor prices, let Scruggs be your source of supply. Sample motor to your specs can be furnished immediately. New plant facilities now permit wider scope, quick deliveries, lower pricing.

You can stake your reputation on SCRUGGS MOTORS

THE Loyd Scruggs COMPANY
Festus, Mo.—A Dozey Corporation Subsidiary
MANUFACTURERS OF PRECISION INSTRUMENTS SINCE 1914

CHECK THESE QUALITY FEATURES

1. Copper-weld rotor for uniform performance.
2. Long-life sintered bronze bearings.
3. Extra large oil reservoirs.
4. Extremely quiet running.
5. Rotor electronically balanced.
6. Double varnish impregnation.
7. Design practically eliminates AC hum.



A 60° ANGLED ISLAND shelf alignment is a feature of almost all store plans prepared by the Independent Grocers Alliance of America for use by member stores. IGA claims that this arrangement allows easier movement of shopping carts in the aisles, better visual display of merchandise, more end of island display spaces, easier

Frozen Foods Packaging Plans --

(Concluded from preceding page) would normally purchase at one time, just as soft drinks are now packaged in cartons of six and some produce such as tomatoes and lemons are now packaged. He believed that frozen foods particularly lend themselves to this type of packaging.

"Manufacturers should look forward to making fixtures designed to merchandise such unit packages," he advised. Rear loading so as not to interfere with customers would be a necessary feature.

Vending Machine Built Into Outside Wall

Another innovation he sees on the horizon is vending machines installed in an outside wall of the store where customers can come at any time of day or night and purchase a complete frozen dinner in a package, milk, or other food items. These would operate like automatic ice vending machines that are in use today.

A central prepackaging station in the store, where not only meat but also produce and dairy items could be prepackaged for self-service would be another idea for speeding up service.

Check-Out Counter Bottleneck

One of the biggest bottlenecks in stores today and one which causes the greatest customer irritation, Longenbaker believes, is the long wait at check-out counters. He suggests that the store of the future will eliminate this bottleneck by two measures.

One is to set the grocery islands at a 60° angle to the check-out stands, which will permit lines to form without interfering with shoppers pushing carts around the end of the aisle.

The other is to set up a processing room. After shopping, the customer brings his cart to the processing room and leaves it there. While he goes after his car or makes a quick trip to another store, his order is prepared and tabulated. When he is ready for his order, he stops at a counter on the outside of the store, pays for his groceries, and takes them away or loads them into his car right there. This will eliminate completely the long wait at the check-out, saving both the customer and the store many minutes of time, Longenbaker declared.

Other suggestions that could be

applied in stores today, and are being used in some, include preparing a mimeographed diagram of the store, showing the location of maneuvering of shopping carts in front of perishable departments, movement of traffic back and forth to perishable departments, greater distribution of traffic, and no bottlenecks. Results, according to IGA, are greater sales per square foot.

all types of products sold by the store, for issuing to customers as they enter, and using an icemaker to supply ice for produce displays.

Mills Industries Appoints Zauner Chief Engineer

CHICAGO — A. E. Tregenza, president of Mills Industries, Inc., has announced the appointment of John H. Zauner to the position of chief engineer.

Zauner was chief engineer of all ordnance development and production programs at the Eureka Williams Co. Div. of the Henney Motor Co. before joining Mills.

During World War II, Zauner was senior engineer at the Applied Physics Laboratory of John Hopkins university and was responsible for development and production of all safety devices and arming mechanisms used in Navy proximity fuses.

From 1946 to 1951, Zauner was a supervising engineer with the Creole Petroleum Corp., major production subsidiary of Standard Oil of New Jersey and was assigned in Venezuela.

Frigidaire Dealer Named

JACKSONVILLE, Fla.—George Ball Appliance Co., featuring Frigidaire home appliances, has just opened for business at 944 Edgewood Ave.

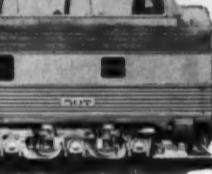


Photo Courtesy The Budd Company



To help assure continuous passenger comfort
THE TRANE COMPANY uses



SOLENOID VALVES

in Air Conditioning
Santa Fe Dome Cars
and Coaches



One of the toughest of all air conditioning installations is that of railroad passenger cars, and THE TRANE COMPANY selected Jackes-Evans Solenoid Valves for the cars on the famous Santa Fe "El Capitan" and other trains. They are helping to insure satisfactory operation of the improved TRANE air conditioning units.

J-E Solenoid Valves are particularly well suited to mobile equipment for they are not affected by motion, vibration, or angle of installation. This is due to the spring loaded plunger closing the pilot port and the diaphragm spring. In addition, their greater opening power assured the Santa Fe that these valves would open under the most adverse conditions where the condenser coil is located directly over the road bed that becomes excessively hot on the western desert.

The amazingly simple design of J-E Solenoid Valves—only two moving parts—rugged construction and advanced engineering assure completely dependable performance under the toughest conditions. For complete information on how J-E Solenoid Valves can save you time, money and trouble in controlling Freon, brine, ammonia, steam, water, air and gas, call your wholesaler or write.



SOLENOID VALVES THAT SURPASS THEIR SPECIFICATIONS
JACKES-EVANS MANUFACTURING COMPANY

Controls Division: 4427 Geraldine Avenue • St. Louis 15, Missouri

**LA CROSSE
KUBE KING
Automatic
ICE MACHINE**

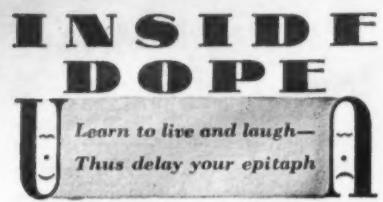
Kube King, the leader in practical design, economical operation produces approx. 2,000 kubes every 24 hrs. . . . storage bin holds about 75 lbs. . . . uses only 5 qts. of water per freezing cycle.

CRYSTAL CLEAN CYLINDRICAL KUBES WITHOUT HOLES!

WRITE TODAY

Removable stainless steel front panel, condensing unit, compressor pulls out for quick servicing. No gadgets with modern Kube King engineering.

**LA CROSSE
COOLER CO.** Factory & Gen'l. Offices: 3000 Losey Blvd., La Crosse, Wis.
Export Office: 30 Broad St., New York City. Cable: Eximport



By GEORGE
F. TAUBENECK

(Concluded from Page 1, Col. 1)

Motto of the Week

"Don't be obnoxious. Leave that to me."

Advice for Today

The person who talks about a recession reminds me of someone who is profoundly pessimistic because he shoots an 86 on Sunday instead of the 85 he shot on Saturday.—DON MITCHELL, President, Sylvania Electric Products.

To him who is in fear, everything rustles.—SOPHOCLES.

A business executive must read—study—analyze—execute. The man who short-circuits this process by putting all the emphasis on execution is likely to find that much effort has been misdirected.—Management Briefs.

I steer my bark with hope ahead and fear astern.—THOMAS JEFFERSON.

Facts are stubborn things—RENE LESAGE.

A great step towards independence is a good humored stomach.—Seneca.

Add Newspaper Stories

"Name two kinds of libel," a journalism exam question preferred at Memphis State (Tenn.) college.

The "Prof," Dr. William Howard Taft (no kin) received an unexpected answer:

"Libel to, and libel not to, like a co-ed."

Thomas McGaugh of Okmulgee, Okla., told a reporter how he lived to be 100:

"I gave up smoking at 80, but I still take a nip now and then."

Oil tycoon Hugh Cullen gifted the University of Houston a \$5,000,000 check.

Typographically erring, the *Houston Chronicle* reported the gift at \$15,000,000.

Cullen phoned the publisher, Jesse Jones—an old crony and another Texas multi-multi-millionaire.

"Jesse," grumbled Hugh, "I can't make you out a liar, so \$15,000,000 it is. But don't let your editors make the same mistake again."

Red-Rared Girls Get Visas to U. S.—*Arkansas Gazette*.

Walk-Ins, Cold Food Display Counters Lead Restaurant Market

NEW YORK CITY—Estimates of the money spent annually by restaurants and hotels for various types of food service equipment have been published by Ahrens Publishing Co. here, publisher of trade periodicals in the hotel and restaurant field. The figures were totaled nationally and broken down by regions.

Estimated annual expenditures for equipment of particular interest to refrigeration equipment dealers are given in the accompanying charts. They are based, according to Ahrens, on "restaurant and hotel basic requirements in direct ratio to the annual food sales of restaurants and hotels in 1952."

The national figures are divided into estimated amounts spent by new establishments and going establishments. Regional figures are in total expenditures only.

"Estimates reflecting the potential of food warmer and food refrigerating equipment," Ahrens commented, "do not include the new sales avenues for these as well as sharp-freeze and packaging equipment, offered manufacturers by the restaurant industry's most significant trend in years—

Restaurant & Bar Equipment

Estimated Expenditures for Refrigeration Equipment

Chart A—National Market for Food Service Equipment and Refrigeration

Equipment	New Est.	Going Est.	Total
Cold Food Counters	\$11,736,000	\$19,016,000	\$30,752,000
Food Warmers, Roll Warmers, and Bain Maries	4,694,000	7,607,000	12,301,000
Freezer Storage	4,694,000	7,607,000	12,301,000
Ice Bins	1,173,000	1,901,000	3,074,000
Reach-In Refrigerators	11,266,000	18,256,000	29,522,000
Walk-In Refrigerators	18,788,000	30,426,000	49,204,000
Water Coolers	1,408,000	2,282,000	3,690,000

Chart B—Regional Markets for Food Service Equipment and Refrigeration

Equipment	New England	Middle Atlantic	E. North Central	W. North Central	South Atlantic
Cold Food Counters	\$2,274,400	\$ 8,054,000	\$5,778,600	\$2,513,500	\$3,433,100
Food Warmers, Roll Warmers, and Bain Maries	909,800	3,221,600	2,311,500	1,005,400	1,373,200
Freezer Storage	909,800	3,221,600	2,311,500	1,005,400	1,373,200
Ice Bins	227,300	805,100	577,600	251,200	343,200
Reach-In Refrigerators	2,183,400	7,751,900	5,547,500	2,412,900	3,295,800
Walk-In Refrigerators	3,639,100	12,886,600	9,245,900	4,021,600	5,493,000
Water Coolers	272,900	966,400	693,400	301,600	411,900

Equipment	E. South Central	W. South Central	Mountain	Pacific
Cold Food Counters	\$1,267,600	\$2,286,000	\$1,088,200	\$4,076,500
Food Warmers, Roll Warmers, and Bain Maries	507,000	906,400	435,300	1,630,600
Freezer Storage	507,000	906,400	435,300	1,630,600
Ice Bins	126,700	226,500	108,800	407,500
Reach-In Refrigerators	1,216,900	2,175,400	1,044,600	3,913,500
Walk-In Refrigerators	2,028,200	3,625,700	1,741,100	6,522,500
Water Coolers	152,100	271,900	130,600	489,100

New England—Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island.

Middle Atlantic—New York, Pennsylvania, and New Jersey.

East North Central—Wisconsin, Michigan, Illinois, Indiana, and Ohio.

West North Central—Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.

South Atlantic—Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, and Florida.

East South Central—Kentucky, Tennessee, Mississippi, and Alabama.

West South Central—Oklahoma, Arkansas, Louisiana, and Texas.

Mountain—Montana, Idaho, Wyoming, Colorado, Nevada, Utah, Arizona, and New Mexico.

Pacific—Washington, Oregon, and California.

* * *

'Take Home' meal service.

"There is certain to be an increased demand for compact refrigerated display counters, as well as freezer display cases designed specifically for restaurant use."

Along with its estimate of the markets for this equipment, Ahrens listed 14 questions that the restaurant or hotel manager is most likely to ask about equipment before he purchases. These 14 questions, not necessarily in the order of their importance, are:

1. Will it expedite production?
2. Will it cut payroll time?
3. What is the cost of operation (including depreciation)?
4. What savings do you estimate can be effected by its use?
5. How long will it take the equipment to pay for itself?
6. Who else is using it?
7. Price?

8. Is service available and prompt?

9. Whom do you call to get such service?

10. Is the product easy to operate?

11. Are there any manuals or technicians to show hotel and restaurant employees exactly how to use the equipment?

12. How has the product been received by employees in places where it has been installed?

13. Is the equipment easy to maintain?

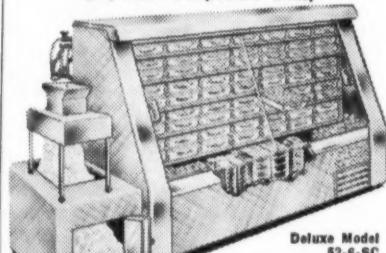
14. Is it easy to clean and keep in sanitary condition?

No Other Case Like This Anywhere!

NEW 4-BROS. ORIGINAL DESIGN

"GIANT ICE KING" ICE CUBE MAKER and ICE CRUSHER

(Separate Companion Units)



Now you can have all the freezer space for cubes or crushed ice you need—cubes or crushed, plus storage space for frozen foods, meats, juices, etc.

Never any ice to scrape, hot gas defrosting system, water station at back with hose attachment. #430 Stainless steel with 4" insulation and Tecumseh Hermetic Unit with 5-Yr. Factory Warranty.

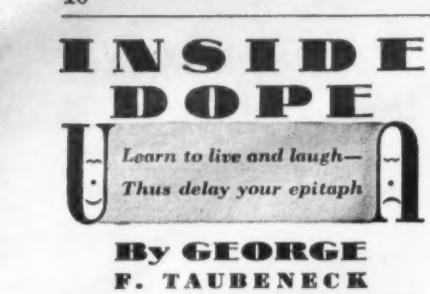
6' Feet Long, 52" H, 30" W
Other Sizes to 10 Ft. Long.

Write for Information and Free Catalogue

4 BROTHERS

REFRIGERATION MANUFACTURING CO.

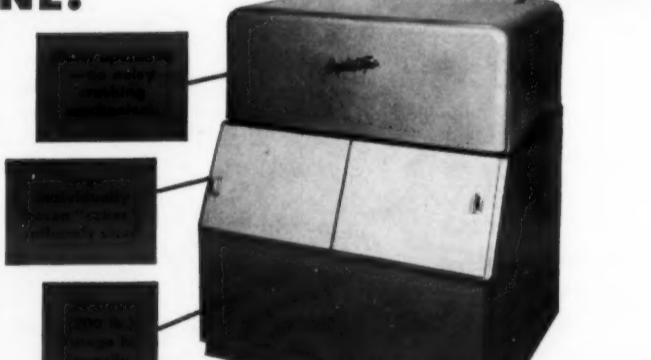
Factory and Showroom:
1423-31 So. 8th St., Philadelphia 47, Pa.
Exclusive Franchises available to dealers



DOES THE JOB OF TWO UNITS FOR THE PRICE OF ONE!

In this day and age everyone is looking for bargains. By purchasing a B-200 the user pays for one but gets two-machine duty—standard size tips... or with the flip of a switch, chipped size ice. For this double feature your customer pays nothing extra.

Compare these plus features:



It's the complete 2-IN-1 Ice Service!

Every commercial and institutional user of ice is a B-200 prospect.
Investigate your profit possibilities. Write for franchise details today.

AMERICAN AUTOMATIC ICE MACHINE CO.

1789 Park Avenue N. W., Faribault, Minn.

Filtrine MANUFACTURING CO.
BROOKLYN 38 • N. Y.
"Water Coolers and Filters for 40 Years"

Fine Cabinet Work Conceals 4 Packaged Units In Church; Low Fan Speed Assures Quietness

GROSSE POINTE FARMS, Mich.—Thirty tons of air conditioning, in the form of four 7½-ton package units, have been provided for St. Paul's on the Lake, a beautiful old R.C. church overlooking Lake St. Clair in this Detroit suburb.

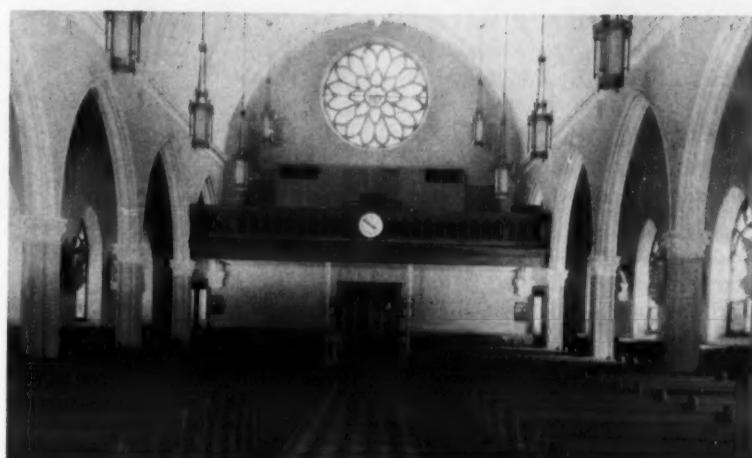
The installation is somewhat unusual in that all four units are located within the conditioned area, but are quiet enough not to interfere with the services, according to Fr. A. L. Melvin, pastor of the church.

Further, the units are cleverly concealed by top quality cabinet work.

The installation, which consisted of four Carrier 50K8 units, was made by Detroit Gas Burner Co., Carrier dealership headed by Wm. K. Tenbusch. Carl Beltz, who manages Temperature Control, Inc., Carrier wholesale distributor in the Detroit area, cooperated actively in the engineering.

It was largely Beltz, in fact, who was responsible for using the package units, being convinced that they would be quiet enough for the job. And to make doubly sure, Beltz had the fan speed slowed down somewhat on each of these four units.

Two of the four units were in-



ABOVE: Grilles in choir loft conceal two of the four 7½-ton package units installed to air condition beautiful old church in Grosse Pointe Farms, Mich.

RIGHT: Checking on one of two units located beside confessional booths in church are Wm. K. Tenbusch (left), installing contractor, and Carl Beltz, manager of Carrier distributorship.



A COMPLETE LINE— Designed to Your Requirements

R-B-M
MOTOR STARTING RELAYS
AND OVERLOAD PROTECTORS



SERIES RELAYS

Balanced armature—Can be mounted in any position.



POTENTIAL RELAYS

Precision snap-action contacts. Convenient terminal board wiring. Totally enclosed.



OVERLOAD PROTECTORS

Patented bi-metal snap-action— inherent protection. Large solder terminals. Manual and automatic.

Let R-B-M engineering and production facilities serve you. Phone 5121 or Write Dept. M-7.

R-B-M DIVISION
ESSEX WIRE CORPORATION
Lagrange, Indiana



Controls for Electronic, Refrigeration, Industrial, Appliance, Communications and Automotive Industries.

stalled in the choir loft at the back of the church to handle the load from the back of the nave proper up the transept.

The nave measures 70 ft. wide by 120 ft. long from the rear to the altar rail. Included in the length is the transept, which runs 110 ft. wide. Seating capacity of the church is 600.

2 UNITS IN CHOIR LOFT

Choir loft units are located on either side of the huge speaker for the Wurlitzer electric reed organ. The enclosing cabinet work, done by Pom-McFate of Detroit, makes it appear almost that the grillework is for the speaker.

These two units can be supplied with 100% fresh air piped in from the belfry. Maximum outside air capacity is 6,000 c.f.m. for these two units combined. A damper is provided, however, so that the amount of fresh air can be regulated as required.

Other two units are located on the main floor at the extreme opposite corners of the transept, discharging air forward and towards the center from a plenum built at the top.

Each of these units is located alongside the confessional booths and here again the enclosing cabinet work conceals the units except on close inspection. Full length louvered doors make these units readily accessible for service as well as allowing for return air.

UNITS INDIVIDUALLY CONTROLLED

The four units are each individually controlled by a thermostat, but it is planned to install a master switch in the sacristy to turn the units on or off as desired, indicated Fr. Melvin.

To control humidity the "Humitrol" on each Carrier unit is kept fully open, thus bypassing a certain amount of air around the cooling coils.

"Baptism" of the system came on the first really hot Sunday to hit the area, and Fr. Melvin was still talking about the results Monday afternoon.

"In 10 minutes I can put this church in beautiful shape and it stays comfortably cool all during the masses on Sunday," he says.

Fr. Melvin naturally is also pleased to say that this installation "saved us \$15,000 to \$20,000 over what a central system with ducts would have cost."



Wholesaler's Brochure Urges Dealers To Install Cooling Towers To Curb Water Use

NEWARK, N. J.—Cooling towers and their value in helping curb water waste were stressed in a direct-mail piece recently distributed to the trade by Wallwork Bros., Inc., wholesaler of air conditioning, refrigeration, plumbing, and heating equipment.

The two-color brochure included a reproduction of a newspaper article headed "Jersey Faces Worst Water Shortage Peril." Emphasized were statements in the article that "air conditioning . . . and a general expansion of all industry account for the steadily rising demand for more water. During the last decade there also has been a sharp rise in the average consumption of almost every household."

Copy in the brochure indicated that in order to protect their water supply, many cities have enacted statutes requiring that air conditioning systems be equipped with some apparatus to preserve or recirculate water.

"You can now sell and easily install water-cooling towers for

residence, business, industry," dealers were told. "Here's your chance to be of service to your community and increase your own sales in this ever-increasing field."

One section of the brochure was devoted to features of the towers and pumps handled by Wallwork Bros.

In addition to dealers and service companies, the brochure was distributed to 55 water departments of New Jersey cities and towns along with other information which might help these bureaus answer questions raised by businessmen and industries on air conditioning installations, R. G. Gaines, advertising manager, said.

Greenville Firm Formed

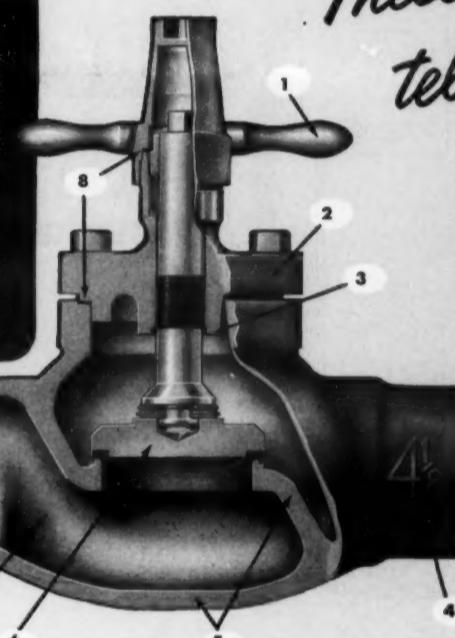
GREENVILLE, S. C.—Palmetto Wholesale Heating, Inc. here has been organized with capital stock of \$10,000 to engage in the wholesale distribution of heating, cooling, and allied products. Robert E. Spalding is president.

*Back of the
Unprecedented
demand for*

HENRY WING CAP VALVES

*is a Leadership
in design*

*These features
tell the story*



Available in bronze alloy and semi-steel types. Sizes range: $\frac{3}{4}$ " to $3\frac{1}{2}$ " O.D.S. and $\frac{1}{2}$ " to 2" F.P.T. Flanged valves available with brass O.D.S. or steel butt weld adapters, sizes $1\frac{1}{2}$ " to $5\frac{1}{2}$ ".

HENRY VALVE CO.

Melrose Park, Ill. (Chicago Suburb)
Cable: HEVALCO, MELROSE PARK, ILLINOIS

Valves, Driers, Strainers, Control Devices and Accessories for Refrigeration and Air Conditioning and Industrial Applications





Trade Mark registered U. S. Patent Office; Est. 1926.

F. M. COCKRELL, Founder

The Conscience of the Industry'

Published Every Monday by
BUSINESS NEWS PUBLISHING CO.
450 W. Fort St., Detroit 26, Mich.
Telephone Woodward 2-0924.
New York Office: 521 Fifth Ave.
Telephone Murray Hill 7-7188.
Chicago Office: 134 S. LaSalle St.,
Telephone Franklin 2-8093.

Ohio Office: Commercial Bank Bldg.
Berea, Ohio, Telephone Berea 4-7719.

Subscription Rates: U. S. and Possessions
and Canada: \$6.00 per year; 2 years, \$9.00;
3 years, \$12.00. All other countries: \$10 per
year. Single copy price, 40 cents. Ten or
more copies, 30 cents each; 50 or more copies,
20 cents each. Send remittance with order.

GEORGE F. TAUBENECK
Editor and Publisher

PHIL B. REDEKER, Editorial Director

C. DALE MERICLE, Associate Editor

JOHN SWEET, Assistant Editor
HUGH MAHAR, Assistant Editor
GEORGE HANNING, Assistant Editor
MARGARET DEAN, Assistant Editor
Editorial Assistants: JOY SLAUGHTER,
PAULINE A. MCNEANEY.

E. L. HENDERSON, General Manager
ROBERT M. PRICE, Adv. Mgr.
ALLEN SCHILDKRAMMER, Western
Advertising Manager
ALICE M. BARROW, Advertising Secy.
WALTER J. SCHULER, Production Mgr.
LLOYD SILER, Circulation Manager
CECILIA COSTYN, Subscription Manager

Member, Audit Bureau of Circulations.
Member, Associated Business Publications.
Copyright 1954, Business News Publishing Co.

VOL. 72, NO. 10, SERIAL No. 1,320
JULY 5, 1954

Marketing Electrical Appliances To Raise Living Standards

(Guest editorial by Harry Alter)

We, in our business, believe that there is nothing that will help raise living standards more than new freezers or dishwashers, or new automatic clothes washers, and dryers, or similar labor-saving household appliances.

I daresay that automobile dealers feel that way about a new car, as do people in other lines. And so it is apparent that the standard of living is raised in *varying degrees*, depending on what new product was acquired.

Therefore, the dealer who sells one of our modern electrical servants to a housewife can be proud of the fact that he is helping raise her standard of living. And the more labor saving appliances he sells her, the higher that standard becomes.

Good hard selling of these labor saving appliances by our industry will result in higher living standards for most of our citizens and greater prosperity for all segments of our industry. Obviously salesmen and salesmanship are of vital importance.

Why, then, are there so few salesmen engaged in selling appliances at retail? Why are there so few home demonstrations? Why do so few merchants offer a free trial now-a-days? Why are there no more door-to-door canvassers ringing door bells? I know the answer, and so do you—"I can get it for you wholesale."

You can hardly find a store in Chicago that has an electric range hooked up; a washing machine with soap and water in it, and operating, or a home freezer with food in it; all standard operating procedure before World War II.

Will salespeople work if you can't afford to pay a decent commission? Will they stay on the job for long if the sales they

They'll Do It Every Time Jimmy Hatlo



create and develop are ultimately lost to discount houses? Of course they won't, no more than you would. And that is why our great electrical appliance industry has almost no salesmen left at all.

Without salesmanship, the thing we Americans are so proud of, the world's highest standard of living will slowly stop rising, and in my opinion, before long, will go the other way.

Without salesmanship our high factory production rates will get smaller, manufacturing costs will go up, and retail prices of necessity will be higher, causing sales to drop still further.

If that sounds overly pessimistic, take a look at the appliance industry for the first quarter of 1954. Dealers have been screaming price, discount and trade-in allowances, over the air and in the newspapers, like never before in my memory—yet, during this quarter, fewer refrigerators, washers, freezers, ranges, and other appliances were sold than at any time since World War II. Can we say that price alone sells these things? I don't believe so.

The electrical appliance industry must learn how to sell these products once again. We must change our marketing methods by abandoning the "supermarket" theory of selling the electrical appliances on price alone. And substitute for that old-fashioned door-to-door salesman, the technique of free home trial, and the lost art of live demonstrations in the store.

Marketing in this fashion, I am convinced, will account for the sale of more electrical appliances than can be sold any other way; and thus contribute to a higher standard of living for all of our people.



Equitable Equipment Co.
New Orleans, La.

Editor:

I am in my particular capacity here am a constant reader of AIR CONDITIONING & REFRIGERATION NEWS. I am constantly disturbed at the enthusiastic articles that appear in your publication on the air conditioning and refrigeration front.

I am not basically a pessimist but I do not want to be misled nor do I like to see others misled. This window unit industry has absolutely thrown the greatest monkey wrench into the air conditioning field that has even been thought up.

The manufacturers have absolutely destroyed one of the finest industries in the country and it is going to take years to overcome it. They are applying window units in this part of the country in all sorts of absurd fashions and all of these installations are inspired by the manufacturers and through their dealers whom they load up with floor inventories which are financed on long term basis.

I am attaching to this an advertisement which appeared in the *Times-Picayune* on June 16, 1954 and I am sure that you will be interested. This window unit business the way it has been handled on a cut throat price competitive basis and the selling of these units at all sorts of prices has absolutely hurt to a very great extent the proper application of the two, three, five, eight, and larger packaged unit sizes.

If some of these smart manufacturers could actually prove that the way they are recommending the installation of window units in multiple groups in large office buildings, in commercial stores and places of that sort then I will be perfectly happy to get into the window unit business. Which we were in and which personally this year we got out of; but I do object, as an engineer, to misinforming the public to the extent that they are led to believe that to install five $\frac{3}{4}$ -ton units in the transom over the show cases in the front of a store is the answer to air conditioning a small store that on the basis of engineering computation requires not less than 5 tons of air conditioning.

I don't expect that you do anything about this particular gripe.

J. T. KNIGHT, JR.,
Manager, Air Conditioning & Refrigeration Div.

Chantilly, Va.

Editor:

We are very grateful indeed to you for publishing my letter of April 3 regarding SiLok in your May 10 News. I am sure it was no coincidence that it appeared in the same issue as your extensive report on the hearing held April 27 by the Senate Subcommittee on Business and Consumer Interests, on the subject of safety devices for household refrigerators.

Please accept our thanks.

MRS. SILAS A. MOREHOUSE

Look at the record before you buy any defrost system

For eight years THERMOBANK has been the unquestioned standard for low temperature automatic defrosting. Significant improvements over the years have made THERMOBANK even better.

If you look at the record of thousands of successful installations, you, too, will join the leading refrigeration experts specifying Kramer THERMOBANK.

WRITE FOR BULLETIN R-124

KRAMER TRENTON CO. - Trenton 5, N.J.



**Shortest
Story?**

THIS IS A SCENE from a television commercial featuring 30-second Chrysler Airtemp casement window room air conditioner installation. Televising of the record installation took place at studios of WSM-TV, Nashville, for Central Air Conditioning & Heating Co., Chrysler Airtemp dealer sponsoring a nightly newscast. From left to right are: F. L. Tagen and John Coffman of Central Air Conditioning, TV actress Bea Briley and Buddy Wilkins, technician. Time: 10:00 p.m. Place: Studios of WSM-TV, "Views of the News," with Newscaster Jud Collins. Action: Opening commercial. Accoucer describing. Sequence: Actress Bea Briley, seated, indicates a casement sash picture window, covered by a wide venetian blind. At her signal two men enter, bearing Airtemp casement window air conditioner. They set the unit on the floor. Tagen raises the blind while Coffman cranks open the window. Together they remove the inside-mounted screen, lift the conditioner into place, and bolt the unit to the casement frame using the same holes for the screen mounting. Tagen plugs the electric line into a wall socket while Coffman starts and sets the controls. With a smile, both men turn to Miss Briley, then fade out. Results: The following day Central Air Conditioning & Heating sold four units to viewers who had seen the demonstration.



**Tell Cooling Story to Gal Behind Pocketbook,
Says Chicago Electric Association Director**

CHICAGO—"They say air conditioning is mostly bought by men, but I believe that women are becoming more interested in the subject and are beginning to influence the buying decision."

So declared C. C. Simpson, managing director of the Electric Association of Chicago. He made the remark in explaining why he selected a newspaper with a high readership among women for announcing the association's annual air conditioning show this Spring.

"I know in my own home," he went on, "my wife was skeptical about air conditioning until we had a window unit installed in a bedroom recently. Now she is enthused

about the benefits of it. "Even in the office, the girls were not sure they wanted air conditioning before we had it. But now, on hot days, they can't get to the office soon enough."

One of the reasons for the greater acceptance of air conditioning today, Simpson believes, is that to a great degree the bugaboo that air conditioning is unhealthy has been eliminated.

"This fear got started in the early days of air conditioning before the systems were perfected as well as they are now. Then, the cooling was damp and not dry. People really did catch colds from it."

**Announcing
PARAGON'S
NEW 3700 SERIES
WINDOW
AIR CONDITIONER
SWITCH**



PROFITABLE "early bird" that saves on business and professional office systems — to 1-ton capacity



Easy to set . . . provides regular daily settings and irregular weekly operation, including Sunday and holiday cutouts

Inner dial set for ON operation any hour. Once set, the same setting prevails each day without resetting. Dial adjustable in 15-minute increments.

Dial trippers on outer dial may be varied to shut OFF unit at a different hour each day or set to eliminate Sundays and holidays.

Also write for complete facts on these famous Paragon timers

Commercial Defroster Dehumidifier Timer 7-Day Calendar Dial Time Switch Fan Timers

PARAGON ELECTRIC COMPANY WORLD'S FOREMOST MANUFACTURER OF TIME CONTROLS

**Room Coolers Set April
Mark In West Penn Area**

PITTSBURGH—Room coolers, automatic washers, and dryers hit their highest level for any April this year in the southwestern Pennsylvania territory served by the West Penn Power Co., the utility reported recently.

Other major appliances, however, were all below the sales level of April, 1953.

Room cooler sales for April were up 43% over last year, clothes dryers 20%, and automatic washers 16%. Garbage disposer sales were even with 1953.

Water heater sales dropped 12%, refrigerators 14%, freezers 15%, conventional washers 19%, ranges 22%, dishwashers 22%, and ironers 30%.

The comparative unit sales figures for April 1954 and 1953 are as follows:

Appliance	April 1954	April 1953
Room Coolers	95	66
Refrigerators	1,138	1,314
Freezers	229	267
Dehumidifiers	4	—
Ranges	656	834
Garbage Disposers	24	24
Dishwashers	32	41
Clothes Dryers	296	245
Ironers	67	95
Automatic Washers	517	443
Conventional Washers	926	1,132
Water Heaters	297	336

**Colombia Distributor
Orders Shipment of 500
Remington Air Conditioners**

AUBURN, N. Y.—The largest distributor of room air conditioners in Colombia, South America, Talectro, Ltd., of Barranquilla, has just completed arrangements with Remington Corp. for shipment of 500 window and console units to that city, Carlos Mercado, Remington export sales manager, has announced.

Talectro handles Remington exclusively in the air conditioning field, said Mercado, and this is the largest order entered by any Colombian distributor with any air conditioning manufacturer this year, he stated.

Because of their aggressive promotion program backed by a well-organized service department, Mercado continued, Talectro is making Remington the best known air conditioner in Colombia.

Final arrangements for the shipment were made here at the Remington plant by Mercado and Erich Spitz, Talectro's general manager.

**Folder Offers Suggestions
On Air Conditioning Wiring**

HARTFORD, Conn.—"What's the Big Idea In Air Conditioning in 1954?", a folder put out recently by Arrow-Hart & Hegeman Electric Co., gives suggestions on up-

grading air conditioning wiring jobs and tips on selling adequate wiring for air conditioning in homes and offices.

The folder contains photographs, catalog numbers, electrical ratings, and packaging information on wiring devices used specifically in air conditioning and ventilating installations.

**ATTENTION!!
Room Air Conditioner
Dealers & Installers
DON'T BE WITHOUT A . . .
HACO
LOAD-VOLTAGE ANALYZER**



A Portable Testing Instrument that quickly determines WITHOUT the necessity of first installing the air conditioner the Voltage Adequacy of an electrical circuit for efficient usage of 1/2, 1/4 & 1/8-HP Units (115 V).

- Will help overcome problems of Inadequate Voltage & Overloaded Circuits.
- Make Room Air Conditioner Owners satisfied and happy.
- Will increase your Sales—An Impressive Sales Tool.
- Sturdily constructed. Will give accurate performance to user in the field.

ORDER NOW . . . Only \$34.95 ea.
Jobbers: Exclusive Franchises available.

Manufactured by
**HEIGHTS AIR CONDITIONING
COMPANY**
3607 Hildana Road Cleveland 26, Ohio

NEW MARCO LOW COST Permanent Split Capacitor MOTOR

• Requiring 67% less running current
— yet retains all benefits of Marco Shaded Pole Motors

1/20 to 1/3 horsepower 5 1/2" diameter

Never before have so many desirable characteristics been built into a motor at so low a price to you!

FIRST: The new design Marco Permanent Split Capacitor Motors give you all the advantages you've enjoyed in Marco Shaded Pole Motors — absence of any troublesome moving parts, switches or relays — provision for 1, 2 or 3 speeds in windings or speed control by external rheostat — the famous Marco dependability and long life.

PLUS: (1) vertical, horizontal or inclined mounting, due to extra-large bearing surfaces, Nylon thrust surfaces and improved oil recirculation system; (2) Quietness far beyond the famous "Hushed" Marco shaded pole motors; and (3) most important, equipment can be designed for lower running current to meet the proposed National Electrical Code (for window air conditioners) in 1/20 to 1/3 H.P. motors.

FINALLY: This higher electrical efficiency and power factor means: (1) lower power consumption; (2) reduced external wiring requirements; and (3) cooler operation.

WRITE TODAY FOR COMPLETE DATA.

MARCO INDUSTRIES, Inc.

790 Terrace Blvd.

Depew, New York

Quality Motors
"tailored" to your
product at
ready-made prices.

Servicing Fountain Freezers

Servicemen Must Have Basic Knowledge of Ice Cream Making, Suppliers of Mix, Operators Problems as Well as Mechanical Know-How

SEATTLE — The serviceman needs to be more than just qualified in refrigeration principles to service fountain freezers and milk shake machines used for dispensing ice cream products directly from the machine.

He must also have sound electrical knowledge, know the art of making ice cream and milk shakes, and have dealings with the operators and suppliers of the ingredients used with this equipment.

That was the theme of a series of talks given before west coast chapters of the Refrigeration Service Engineers Society by R. W. Abshire, in charge of the factory customer service department of the Sweden Freezer Mfg. Co. here, and A. A. Baudat, Sweden manufacturing manager.

They presented a number of common points that every serviceman should know in order to give usual customer satisfaction to common problems occurring in the field.

Basically, they said, fountain freezers and milk shake freezers are not different than the industrial type of ice cream freezers used in dairies. One of the basic differences is that they are smaller in size and that they are so equipped

that personnel with very little experience can run them.

The other basic difference is the fact that in the case of soft ice cream freezers the product must be frozen to much colder temperatures than in the industrial types of machines.

In the latter case, the machine starts under light loads as the liquid product is simply brought down to 24 or 25° and whipped or aerated until it contains about half air and mix. It is then drawn from the machine for hard freezing into hard ice cream.

In the case of soft ice cream, the product has to be brought down to 18 to 20° with only a small amount of aeration to be held in the freezing cylinder with that temperature maintained until it is served to the consumer. This can be for a long period of time.

The machine must start up under full load, and possibly up to a thousand more cycles in a normal day's operation. This demands peak efficiency from the mechanical and refrigeration system which brings some real problems peculiar to this type of machine.

These unusual requirements were explained and stressed during the talks. These peculiarities do not

only apply to Sweden Freezers but to almost all makes of fountain freezers and milk shake machines.

Dasher and Scraper Blades

It is extremely important for every serviceman to realize the importance of having a dasher that is functioning correctly with a blade that is sharp and makes full length contact on the freezing cylinder.

If, for instance, the scraper blade does not scrape the product off the freezing wall, a film of ice will form on the wall. This would tend to insulate the rest of the product from the refrigerant. The customer will complain that the freezer is not freezing right, or it causes the automatic temperature control to fail in keeping the product at the correct consistency.

Regardless of what adjustment the serviceman would make to the refrigeration system, he will not be able to have a satisfactory operation of this machine.

It should be understood that the function of the dasher is actually three-fold. It must scrape off the product as it freezes on the cylinder wall, it must provide a pressure on the product toward the front of the cylinder for ejection whenever the gate is open and it must whip a controlled amount of air into the product in order for it to be palatable.

Mix

Customer's dissatisfaction can often be traced to the quality of the mix furnished to them by the dairies and yet might appear that the refrigeration system of the machine is not functioning correctly.

The customer might complain that one day a machine was functioning perfectly and yet the following day, with exactly the same setting, it takes much longer to freeze or the product does not hold the same consistency.

It should be known that mix made with various sweeteners — honey instead of sugar, and even different types of sugars — will produce a product of different consistency at different temperatures.

In other words, if the machine is set to give a product of satisfactory consistency at 21° with one type of mix, and the dairy uses a different type of sweetener the next day so that the mix may have to be frozen down to 19° in order to obtain the same consistency, it is easily seen that this will cause dissatisfaction as controls will have to be reset for the new temperature setting required, and it will take longer to freeze to that lower temperature. No amount of adjusting in the refrigeration system will correct this condition.

Another example is that a complaint will be heard that the consistency of the product will not remain uniform or butterfat will churn out of the mix. There again, no amount of refrigeration service will help.

The working of the product in the cylinder before it is drawn demands that the mix be properly homogenized at the dairy and that its ingredients assure a uniform frozen product when held in the machine for long periods of time.

This requirement is not usually necessary when the mix is used for making hard ice cream at the dairy since it is completely drawn out of the machine immediately upon freezing.

Nevertheless, servicemen should be aware that any condition which causes a reduction in machine efficiency and results in a longer than normal freezing time and consequently longer operation of the dasher mechanism will tend to make this condition worse.

Service & Supplies

Daily Cleaning

Improper daily cleaning of any ice cream freezer or milk shake machine can cause difficulties which may appear to be mechanical. For instance, if a freezer is not taken apart daily and properly cleaned, some residue of mix will harden and dry up and may cause some of the mechanical parts of the mix feeding mechanism or of the dasher or of the cream seal to fail.

Another common complaint which a serviceman may try to remedy by checking and adjusting the refrigeration system is that mix will spoil. This at first glance may seem to indicate a failure of the mix cooling system.

However, in practically all cases mix spoiling can be traced to improper daily cleaning and improper daily sterilizing. In some cases there could be the difficulty of the mix not being fresh.

While the Sweden Freezer Mfg. Co. tries to have all parts made so that they can only go together one way, Abshire and Baudat said, the operator should be cautioned and the serviceman should check to make sure that various parts which have to be taken apart daily are put together in the correct manner. Incorrect assembly causes improper functioning which no amount of adjusting in the refrigeration system will correct.

There are other points in these machines which should be checked after the above points have been checked and corrected. They do not only apply to this type of equipment, but to practically all other types of refrigeration systems.

Evaporator Flooding

It is important that the evaporator be fully flooded while the freezer is operating to perform any kind of acceptable performance. While it is sometimes the practice to check the flooding of evaporators by pressure readings, we recommend against this method since variations in the gauges alone can be of sufficient error to cause the closely coupled evaporator to be incorrectly flooded.

Inspecting the frost line to make sure that it is coming out of the evaporator and going into the heat exchanger, yet not into the compressor, is essential. Failing to do this will not only cause slow freezing, but it will affect the performance of the temperature control.

Many such controls have been changed with the belief that they were not working correctly, and yet upon test it was shown that they were in A-1 condition, but that the diagnosis of defective temperature control was due to improper expansion valve adjustment or improper charge in the case of capillary tube systems.

Control Bulbs

It cannot be stressed too strongly that capillary tubes of control bulbs should be secured and the bulb in the correct position. Temperature control bulbs of the straight tube type should be fully inserted into the bulb well, and in every case the end of the bulb well should be fully sealed against moisture.

Expansion valve bulbs should make good clean metal to metal contact with the suction line. They should be well insulated and moistureproofed so that outside temperature or build-up of ice does not affect their operation. Should there be any paint or other foreign substance on the surface of the suction line tubing, it is essential that it be cleaned with emery cloth be-

fore the sensing bulb is secured tightly on to it.

Oil Saturation

In a high power short-coupled system such as used on fountain freezers and milk shake machines, too much oil can be as bad as too little oil. It will cause continual pumping of oil and saturation of oil on the refrigerant feeding the evaporator with resultant slow freezing.

Since fountain freezers are usually turned off overnight, it is important that the machine be operated for two or three hours before an oil level is determined since oil will circulate more heavily during the early period of operation before temperatures are stabilized.

Abshire and Baudat then went into some of the electrical conditions of this equipment, stressing the important points to check.

Low Voltage

It has been found that undersize wire leads to the machine and insufficient or excessive voltage supplied by the power company are the major causes of electrical component's failures.

While all components are fully reliable to function on a variation of plus or minus 10% on the input voltage, greater variations are often found at the machine itself, which will cause contact points to burn, relays to stick or fail to make contact, motor and solenoid coils to overheat, which in turn will cause thermotectors to repeatedly break the circuit.

All of this causes great inconvenience to the operator. The serviceman should always first make sure that this is not the cause of difficulty and should request a continuous recorded voltage check to be made at the machine itself.

The power company is usually willing to provide a recording voltmeter so that this check can be made. It is important to have the record over at least two full days or a weekend through the rush period when trouble appears.

The serviceman is often called upon to check the machines during the quiet hours of the day when power lines are not used as extensively so that this cause of trouble is difficult to isolate and correct unless a corrected voltage check is available.

Machine Capacity

A difficulty which many servicemen will find hard to cope with is related to the capacity of a fountain freezer or milk shake machine. It is not possible for a serviceman to obtain more capacity out of the machine than what it was built for provided the machine is in good working condition and has been adjusted correctly.

It has been found necessary to explain to customers that a capacity of so many servings per hour means servings spaced out over the full period of the hour and not in short periods with nothing served during the balance of the hour.

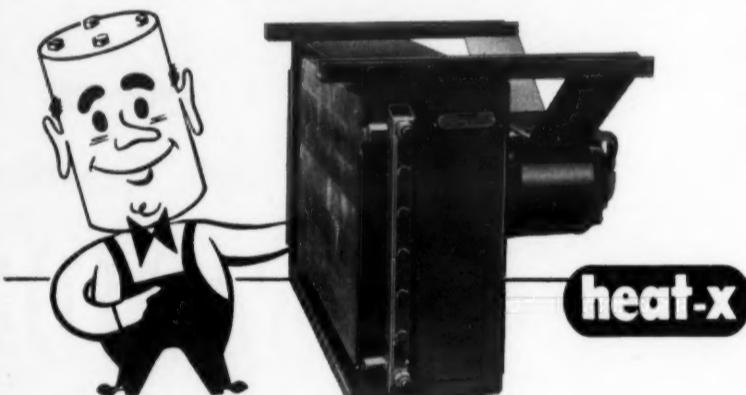
ASK TO SEE IT! **REFRIGERATION**
Just Out! AUDI'S REFRIGERATION & AIR CONDITIONING GUIDE. 384 Pages. For Servicemen, Showmen, Covering Principles, Service, Operation & Repairs of Household, Special, Commercial, Industrial Units & Air Conditioning. 1280 Pages. Illustrated. Valuable Facts & Figures. Get this information for yourself! Mail Order Today. Money Back If Not Satisfied. **AUDI**, Publishers, 49 W. 23rd St., N.Y. 10

4
COMPLETE

IL BURNER
INFORMATION IN HANDY FORM
Just Out! AUDI'S IL BURNER GUIDE 384 Pages. Gives Practical Information on Construction, Installation, Operation, Service and Repair of Gas and Oil Burners. Fully Illustrated showing Automatic Controls, Electrical Hookups, & Wiring. Money Back If Not O.K. \$1 POST PAID AUDI, Publishers, 49 W. 23rd St., New York 10, N.Y.

Worried about impending water shortages?

Save 90-95% on water consumption . . . have full water cooled capacity

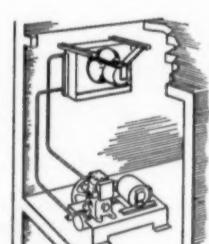


Heat-X combination air-and-water cooled condensers offer the practical solution to water shortages . . . insure that your installations won't be shut down because of low supply or high cost. On refrigeration installations they permit an average water saving of 95%; on air conditioning installations they save 90%.

What's more, they permit flexibility in installation. They can be mounted indoors or outdoors . . . in the most convenient location.

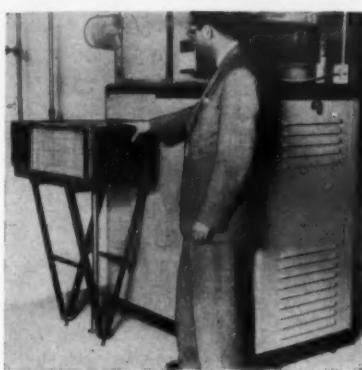
Heat-X combination air-and-water cooled condensers have full water cooled capacity. Compressor can operate at full water cooled speed. And there's always reserve capacity available . . . independent of failure of either air or water supply.

REQUEST FREE DESCRIPTIVE BULLETIN.



HEAT-X-CHANGER CO., INC.

BREWSTER • NEW YORK



Silco Unit Cools Home With Cold Water or Mechanical Refrigeration

MINNEAPOLIS—A home air conditioning unit using either cold water or mechanical refrigeration for its cooling source has been introduced by Silco Products, Inc.

When cold running water at 60° F. or less is available, the Silco unit can be installed permanently in any forced air heating system to convert the entire system to a cooling plant.

No alteration in the present system is required and the heating efficiency is not impaired in any way, the company said. The Silco unit is permanently installed on the furnace and connected to the cold water supply.

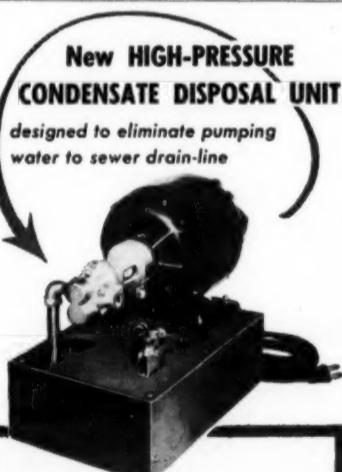
In heating systems of the gravity type, the installation of a fan and a motor is needed. If no cold water supply is available, a mechanical refrigeration system can be added.

Silco units are made in 10 sizes to accommodate any size home. The area to be cooled and the temperature of the water are all that is needed to select the proper size. The water used for cooling may be re-used for all household purposes including sprinkling, thus reducing operation cost.

In addition to maintaining a reduced temperature of 10 to 15° F. below outside temperatures, the Silco unit will extract moisture from the air and reduce humidity to a point within the comfort range, the company claims. Thermostatic controls may be added to the system at extra cost.

JUST ASK US!

Turn to "What's New" Page for useful information on new products.



\$7450 { complete—to contractors F.O.B. Dallas*

- 1/3 H.P. Motor
- Hot-dipped galvanized tank

EXCLUSIVE FEATURE: condensate accumulating in tank is pumped against 100 lbs. pressure of condenser water-line through check valve directly in condenser water-line at air conditioning unit, thence to cooling tower.

*Or order from jobber

ASK US FOR COMPLETE DETAILS

ASHCRAFT CO.
MECHANICAL EQUIPMENT
5643 Dyer Street • Dallas, Texas

Residential Air Conditioning

Frigidaire Announces 2-Ton Year-Round Unit

DAYTON—A compact new year-round residential air conditioner of 2-ton cooling capacity, combining heating and cooling in a single package, was announced recently by Frigidaire Div. of General Motors Corp.

W. F. Switzer, the firm's air conditioning sales manager, said the new unit went into production in June. A 3-ton unit of similar design was introduced earlier this year.

The 2-ton unit was first installed in a six-room home at Austin, Texas, in the world's first air conditioned village, a research project.

Switzer forecast that within the next five years there will be 2,000,000 fully air conditioned homes in America.

Frigidaire's year-round units offer the option of using oil or gas as fuel for heating. Furnace capacity is 75,000 B.t.u./hr. output with oil; 90,000 B.t.u./input with gas. Summer cooling and dehumidification are provided by completely automatic electric refrigeration systems.

The units are designed to cool and heat both new or existing homes of up to six rooms. They are "extremely compact," with dimensions of only 76 in. high (including plenum for ductwork), 46 in. wide, and 25 in. deep, the company said.

They have been designed and engineered to operate in small closet-type enclosures, basements, or utility rooms. The complete mechanism of each is enclosed in gray enameled steel cabinets.

Kearns Named V.P. At York-Shipley, To Head General Div.

YORK, Pa.—John G. Kearns has been elected vice president in charge of the General Div. of York-Shipley, Inc., according to S. H. Shipley, president.

Kearns, in his new position, will direct the sales of York-Heat automatic heating equipment and Shipley air conditioners to large building projects, national users, and in export markets. He will also concentrate on the design and manufacture of special types of heating and air conditioning equipment for pre-fabricated homes and special applications.

Kearns has been with the York-Shipley organization for more than 12 years, serving for many years as general production manager, and later heading the Ordnance Div. of the company which was engaged in the manufacture of 105 mm. shells. He has been a vice president of the company.

'Model Home Production' Kit Emphasizes Air Conditioning

COLUMBUS, Ohio—A new "Model Home Production" kit has been produced especially for home builders by Janitrol Heating & Air Conditioning Div. of Surface Combustion Corp.

The kit emphasizes the importance of year-round air conditioning as a sales feature in new residential structures.

The five-part kit includes free outdoor site signs and room cards drawing attention to the fact that the model home and every room in the house is "comfortized" the year-round with Janitrol units.

Free hand-out booklets, "Why You Can Afford Janitrol Year-Round Air Conditioning Now," permit the visitor to study, at his leisure, the advantages of year-

round comfort. The booklet also recommends ideas for financing such a system in his own home. This booklet has a blank rear cover for the builder's message.

Also included in the kit is a colorful easel display that provides a handy rack for literature on the model home air conditioning system. Janitrol has completed the kit with prepared newspaper mats for local use.

The mats feature air conditioning in the model home as a means to attract crowds to see the display. A special cooperative offer for use of the mats in newspaper advertising is made to the builder and/or heating contractor.

Brochure Describes Permaglas Year-Round Units

KANKAKEE, Ill.—The Permaglas Div. of the A. O. Smith Corp. has announced the preparation and release of a brochure describing Permaglas year-round air conditioners.

Printed in four colors, the four-page specification sheet shows the features of the units, details the action of the A. O. Smith modulation feature, and gives capacities and dimensions of the entire line.



SHOWN INSPECTING the "Dacor," a new disposable activated carbon odor remover for home heating use are, l. to r.: Dr. O. L. Barnebey, H. L. Barnebey, and Arthur W. Cox of the Barnebey-Cheney Co., and W. J. Olson, president, D. H. Kinnan, chairman of the board, and L. G. Hickok, executive vice president of the Armstrong Furnace Co. Both firms are in Columbus, Ohio.

Disposable Odor-Removing Filter Designed for Use In Home Heating

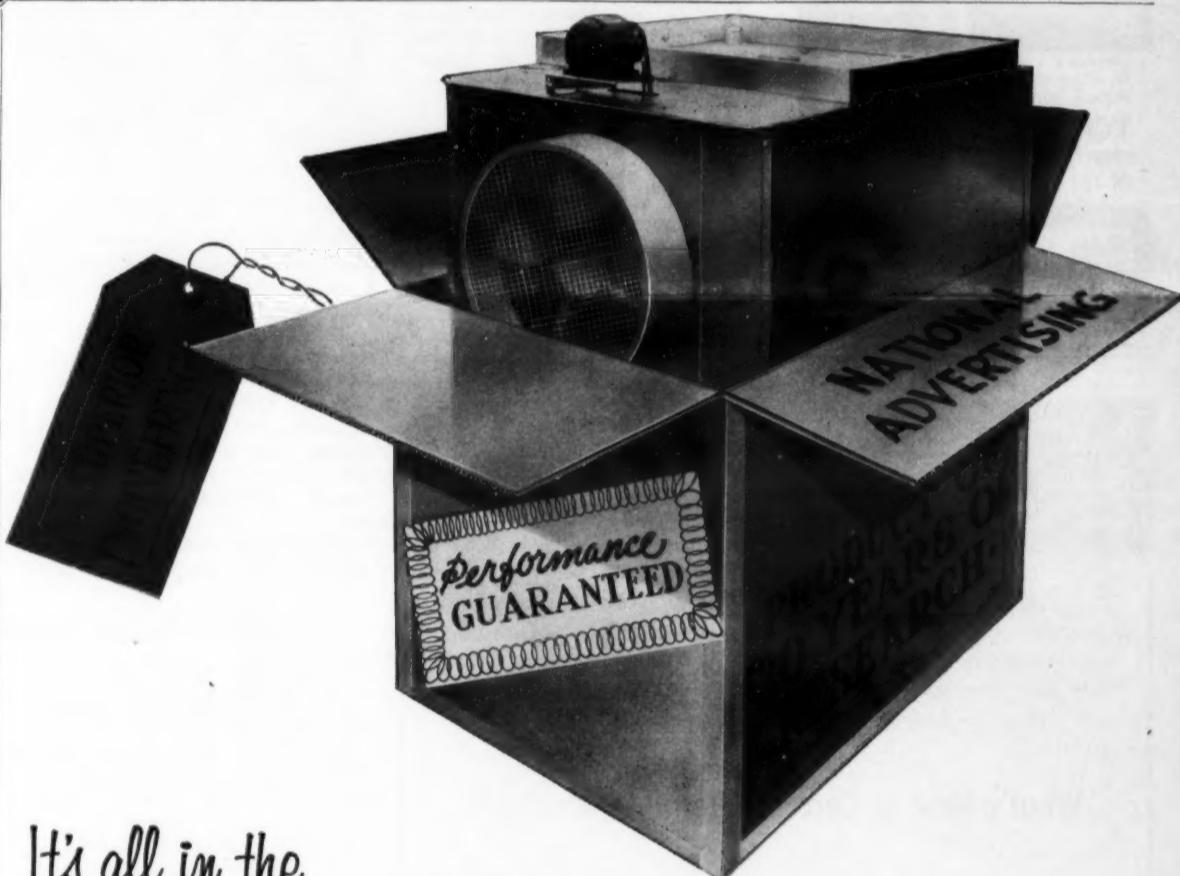
COLUMBUS, Ohio—A new type of odor-removing device for the home heating field is being offered jointly by the Armstrong Furnace Co. and the Barnebey-Cheney Co. here under the trade name "Dacor" or disposable activated carbon odor remover.

The unit employs a grille work of tubes of porous, non-woven rayon cloth containing activated carbon. The carbon removes gases

and vapors much the same as a wartime gas mask, allowing purified air to pass through, it is explained.

When used in a winter air conditioning furnace, the Dacor is said to remove common household odors, smoke smells, and smog.

The Dacor can be changed easily, and is normally used in conjunction with a dust filter, the company explained.



It's all in the Aquatower* Package...and nowhere else!

Everything you need to make profitable sales and satisfied customers comes wrapped in one package when you buy Marley Aquatowers. No other packaged cooling tower offers you—

PLUS-PERFORMANCE. Marley gives you proof—not promises—that its cooling towers will deliver cold water at the temperature and in the volume specified, even under peak load. The proof: thousands of installations in satisfactory service for years in every climate . . . hundreds of repeat orders year after year from outstanding contractors.

TECHNICAL AND SALES ASSISTANCE. In all major cities, Marley engineering representatives stand ready to assist you with any water cooling problem. They are backed by the world's largest cooling tower engineering staff, which issues authoritative literature of real value to installers . . . and Aquatowers are pre-sold by the only national advertising campaign reaching the consumer, bolstered in many cities by newspaper advertising.

The Marley Company

Kansas City, Missouri



What's New (Con't)

New Type Baseboard Diffuser Easy To Install



KEY NO. D-716

CLEVELAND—A new type of baseboard air diffuser designed to distribute warm or cool air "with unusually high efficiency for its size" has been developed by The Auer Register Co. here.

Called the Auer "Perfusaire," this new perimeter register can be installed with a minimum of cutting or fitting inside or outside the baseboard, or plastered in, according to the company.

"This makes it readily adaptable to older dwellings with high baseboard, as well as to new homes," the company said.

"It has a pre-cut hole to fit 2 1/4-in. by 12-in. duct openings, and knockouts for making the opening size 2 1/4-in. by 14-in. on the job, without cutting.

"Another feature is a flanged base which covers irregularities in the floor opening and edges of carpeting—assuring coverage of the hole in the event that the floor shrinks or pulls away from the wall.

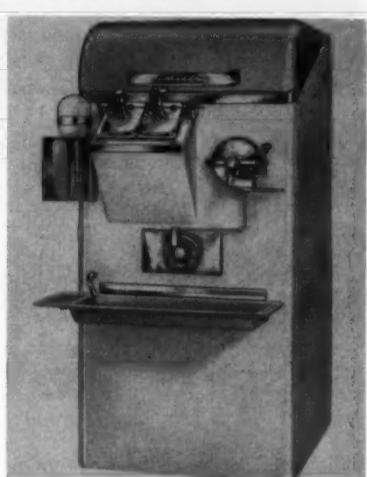
"A factory-installed damper permits balancing of the system without additional expense for parts or labor."

Although this new unit measures only 18 by 4 1/2 in. over-all, the manufacturer claims Perfusaire's large free area "offers such low resistance that it has the capacity of 4 to 8-ft.-long perimeter diffusers, provides peak efficiency on standard air conditioning systems, and reduces power consumption of blower motor.

"Louvers are positioned to provide distribution over a wide wall area in a pattern designed to make Perfusaire perfectly adaptable to

combination heating and cooling, as well as straight heating systems."

Factory finish is "Bufftone"—suitable for installation as is, or as a prime coat for painting to match the baseboard.



Milk Shake, Malt Machine Has Built-In Syrup Pumps

KEY NO. D-717

CHICAGO—Mills Industries, Inc. has introduced a new milk shake and malt machine featuring built-in refrigerated syrup pumps which make possible three popular flavors (basic vanilla is one) without leaving the machine.

Construction details include the "Sentinel" control which makes machine operation fully automatic, according to the company.

"There are no switches to operate," the manufacturer said. "Merely open the draw gate to obtain basic vanilla shake, add flavor, and mix in shielded blender."

Mix container, freezer barrel, and syrup pumps are of first-grade stainless steel, contained in a separate insulated refrigerated chamber. Top and tray are of light blue plastic, giving a modern appearance.

Service to customers under normal conditions is rated by the company at 17 to 25 gals. of shakes (weight) per hour, which does not include predetermined overrun, with a 3/4-hp. water-cooled condensing unit.



Children's Water Cooler Measures 30 In. High

KEY NO. D-718

COLUMBUS, Ohio—A bantam-size water cooler is being introduced by the Ebc Co. here, called the Oasis "Juvenile." The model is only 30 in. off the floor so that small fry can get a cool drink of water without stretch or strain.

Although shorter in size, the Oasis Juvenile cooler has a capacity of 10 g.p.h. It will take a remote fountain and/or glass filler attachment like the standard Oasis 10-gal. model.

The new model also includes standard pre-cooler and 5-qt. reserve storage tank, plus 1/8-hp. compressor. It carries the usual 5-year factory warranty.

Leak Detector Designed For Air Conditioning

KEY NO. D-719

CHICAGO—General Air Products Corp. here has announced a new testing device for general piping leakage tests in the air conditioning, plumbing, and heating fields.

Known as the "Test-King," the compact, portable device comes complete with pressure gauge and valves and fully charged and ready for operation. The Test-King complete, with a full charge of carbon dioxide, weighs 40 lbs.

According to the manufacturer, some of the uses of the device are pressure testing all heating, gas, air conditioning, and water lines of all sizes and lengths at pressures required; removing all water from lines, especially in freezing weather; and cleaning pipe lines in new or old construction.

One charged Test-King can be used to test approximately 10 average size homes, the company said.

"Leaks are distinctly audible and visible due to frosting of atmospheric moisture," it pointed out.

Test-King is said to meet all Interstate Commerce Commission regulations.

Refills are obtainable at any CO₂ fire extinguisher refill station listed in telephone directories or by sending the device prepaid to the factory.

Combination Sandwich Unit Has Toaster Stand

KEY NO. D-7110

NEW YORK CITY—A 4-ft. refrigerated combination sandwich unit and toaster stand with 10 stainless steel pans and large refrigerated storage compartment has been announced by the S & R Soda Fountain Mfg. Co. here.

Measuring 4 ft. long, 31 in. deep, and 32 in. high to working top, the unit is of welded steel construction and has a stainless steel interior. Features include a hinged hood for sanitary food protection, refuse slot on laminated cutting board with removable refuse drawer, two stainless steel bread drawers on roller bearings, and adjustable legs.

Electrical outlets are provided on the toaster stand. Crated weight is approximately 380 lbs.

The unit is made in several standard sizes and can be custom built, the manufacturer stated.

Advertisement

usAIRco Unit Beats Heat Against Odds!

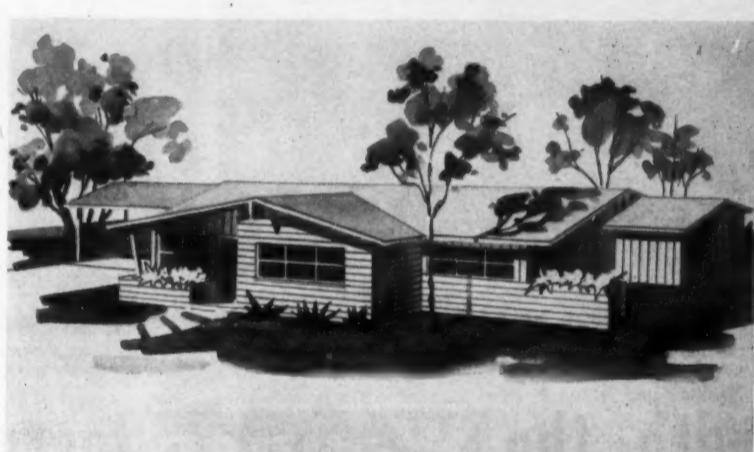
Home Air Conditioner Cools to 79° Against 97° Outside Temperature as 250 pass through Home at Austin, Texas "Air-Conditioned Village"

AUSTIN, Texas—At the opening of the Austin, Texas Experimental Air Conditioned Village, even against such odds as a 97 degree outside temperature and about 250 people passing through the house during a 3-hour stretch, the usAIRco test home maintained a comfortable 79-80 degrees indoors.

Attracting nation-wide publicity the experimental Air Conditioned Village, sponsored by the N.A.H.B., opened for a special trade showing on June 2. More than 700 representatives of air conditioning manufacturers, suppliers, equipment concerns and other tradespeople inspected the 22 homes, each equipped by a separate manufacturer. During the three hottest hours of the day, 2 to 5 p.m., the official outside temperature recorded at 97 degrees.

Each of the Austin Village homes is equipped with year-round air conditioning. Some have automatic measuring instruments to keep records on air conditioning and temperatures for a period of one year.

The usAIRco Home Unit which air conditions the Austin Village home is Model 7720, 2 h.p. upright packaged air conditioner with compressor and motor, water cooled condenser, direct expansion cooling coil, air filter and centrifugal fan for air circulation. A cooling tower recirculates the condenser water.



This central location provides for short runs of duct work to all rooms. Design includes overhead duct system with ceiling diffusers to obtain better air distribution and control than with high inside wall air outlets. Ducts originate from a common discharge plenum, extend through the attic, then lead out to the various rooms with ceiling diffusers. A single return duct is used.

Minneapolis Honeywell Electronic Modulflow package with outdoor thermostat, Electronic Clock Thermostat and electronic relay, modulates temperature control of the entire system. Modulflow control system prepares equipment in advance to take care of rapid changes in outdoor temperatures.

3. Small perimeter house with low outside wall area.

4. Solid west wall shaded by carport.

5. Roof overhang on south side.

6. 1,258 square feet in size, the usAIRconditioned home has a built-up roof and slab floor with vapor barrier.

Village To Be Watched Closely In Future Months

The Air Conditioned Village of Austin, Texas has gained national fame since it's a project in which the N.A.H.B. is participating. The N.A.H.B. plans to study the effects of air conditioning smaller homes on family living, as well as check the size and type of equipment to be used in such homes in a key location.

The study will continue for one year under occupancy conditions. Special attention will be given to the effect of air conditioning on the health and welfare of children. Installation and operating costs will also be carefully studied by N.A.H.B.

Same Unit Heats In Winter

An efficient cooling unit, the usAIRco packaged air conditioner also provides heat in winter. A 3-row water coil is used for heating, with hot water being supplied by a boiler.

usAIRco's Model 7720 is extremely compact in size: 62 1/2" high, 39" wide, 21 1/2" deep. It is located in a closet in the center of the house.

Home's Design Conducive To Air Conditioning

This house was designed for air conditioning and built with the following features to minimize the cooling load:

1. Plastered walls with rockwool gypsum insulation.
2. Canvas awning shading on the exterior.

GET THESE PROFITS WAITING FOR YOU!

Room Air-Conditioner Owners Need WHITE-RODGERS PLUG-IN THERMOSTAT

Plug-in Thermostat

Adaptor Plug

Wall Socket

Plug of Air Conditioner

Wherever you sell, have sold or service a room air-conditioner, there's a sole waiting for you. Easy to sell, because this new White-Rodgers Plug-in Thermostat increases comfort, saves power and reduces running of these cooling units.

No installation problem—just mount the thermostat and plug in like a lamp. Control carries 1 hp. rating, can be used with practically all 115 volt room air-conditioners and all window fans.

Free Display Sells for You—Your initial order of ten controls brings this dramatic display without charge. On your counter it acts as a silent salesman . . . brings you extra profits.

Call your Wholesaler or write us direct for name of nearest wholesaler with stock on hand.

WHITE-RODGERS
Controls
FOR REFRIGERATION
HEATING AND
AIR CONDITIONING
1209 Cass Ave.
St. Louis 6, Mo.

FREE...
Mailing pieces
available



Rubber Processing

Test Chamber In Synthetic Rubber Plant's Laboratory Checks Products at Temperatures Down to -95° F.

UNION, N. J.—Coupled with man's aggressive probing above the earth's surface and his continued insistence upon seeking out whatever resources the polar regions may offer is an ever increasing need for materials which will withstand the extreme cold found in these regions.

Manufacturers in all phases of industry are being called upon to meet lower and lower temperature specifications in the production of their products. First it was just a few degrees below zero, then to -40° F., now to about -85° F., soon below -100° F.

To aid in the development of rubber for low temperature applications, one large Eastern synthetic rubber manufacturer maintains a rubber laboratory which not only tests submitted samples at temperatures to -85° F. but also will conduct experiments to develop a rubber to meet given low temperature specifications.

To conduct these low temperature tests at the ever-lower temperatures required, the laboratory recently installed a "Sub-Artic" chamber (Fig. 1) manufactured by Tenney Engineering, Inc. here. In this chamber, capable of reaching -95° F., are conducted the Bent

Loop test, Compression Set Freeze test, Jolly Balance Stiffness test, Cellular Rubber Compression-Deflection test, and Young's Modulus test.

BENT LOOP TEST INDICATES BRITTLENESS

The Bent Loop test is a brittleness test. In carrying out this test, elastomer specimens 0.080 in. thick and shaped as in Fig. 2 are bent into horseshoe loops and secured between two parallel plates of a portable "flexing fixture." At the beginning of the test these plates are 2 1/2 in. apart. The fixture is placed in the cold box at the desired test temperature.

Synthetic rubbers remain in the box for five hours, natural rubber for 96 hours. At the end of this time, and while still in the cold chamber, the plates of the flexible fixture are rapidly moved to within 1 in. of each other. Samples are then examined for fractures or cracks. At least two specimens are tested at a time.

If both show no cracks the compound is considered to have passed the test. If both show cracks, the compound is considered to have failed. If one passes and one fails, the test is repeated with different

specimens and if one fails again the compound is considered to have failed. The test chamber was designed with handholes so tests could be conducted inside the box without opening the cover.

LOSS OF THICKNESS TEST

The Compression Set Freeze test gives the loss of thickness of a specimen after being compressed for a period of time at a given low temperature. This loss of thickness, or set, is temporary since the specimen will regain its original dimensions when brought back to room temperature or slightly above.

Under this test, cylindrical discs 1.129 in. in diameter by 0.5 in. thick are compressed in jigs similar to those in Fig. 3. The amount of compression applied depends upon the hardness of the sample. The following table gives deflection specifications for samples of various hardnesses:

Durometer Hardness No.	Deflection, Per Cent of Original Thickness
30 ± 5	40
40 ± 5	40
50 ± 5	30
60 ± 5	30

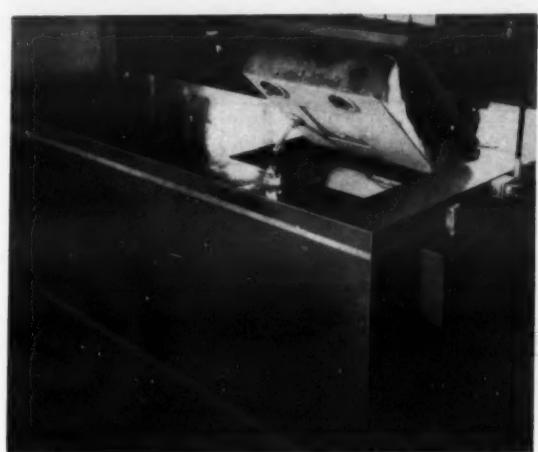


FIG. 1—"SUB-ARTIC" test chamber capable of reaching -95° F. is used for conducting many tests necessary to determine effects of low temperatures on rubber products. This unit was manufactured by Tenney Engineering Co. for installation in the plant of a large Eastern synthetic rubber manufacturer.

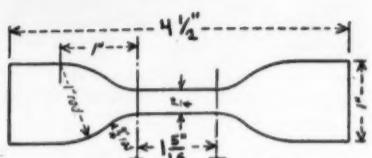


FIG. 2 illustrates a step in the Bent Loop test, which is used to determine brittleness of rubber.

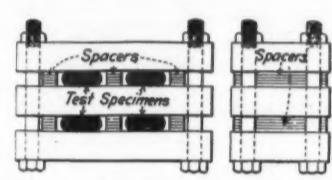


FIG. 3 is a diagram of a portion of the Compression Set Freeze test, which gives loss of thickness of a specimen after being compressed for a period of time at a low temperature.

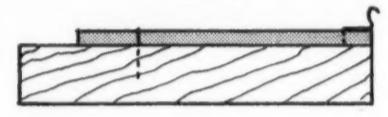


FIG. 4—The Jolly Balance Stiffness test, described in the accompanying article, measures the force necessary to raise one end of an elastomer specimen a distance of 1 cm. while the other end remains stationary.

length of the chain, index line, and lower line on the glass tube are adjusted so they coincide at a convenient point on the scale when the end of the test specimen just starts to move away from the board. This reading is recorded and the Jolly balance adjusted until the index line coincides with the upper line on the glass tube. This reading is recorded and the difference between the two is the stiffness of the test specimen at room temperature.

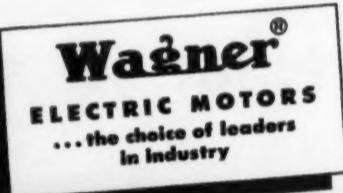
The test specimen is then placed (Concluded on next page)



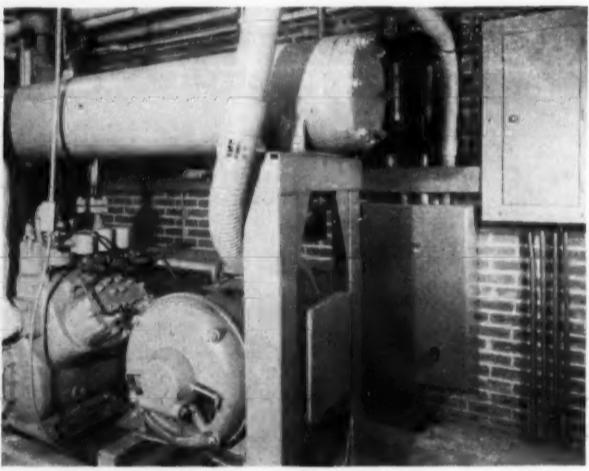
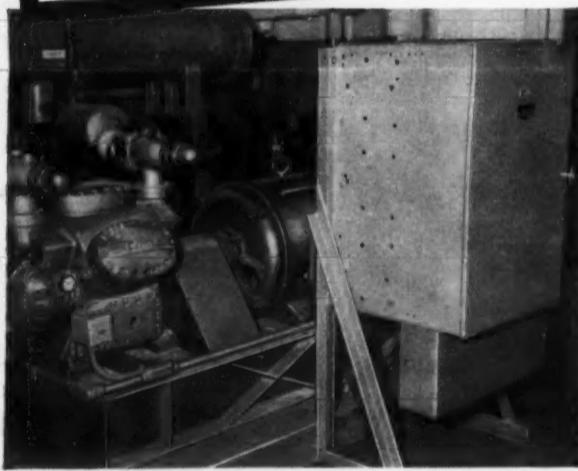
The purchase price of any product is often misleading, for it precludes the cost of long-run operation. All Larkin products are engineered for the lowest possible operating costs, yet they are priced right. That's why Larkin leads the field for long-run, low-cost operation.

Manufacturers of the original Cross-Fin Coil • Humi-Temp Units • Frost-O-Trol Hot Gas Defroster • Evaporative Condensers • Cooling Towers • Air Conditioning Units and Coils • Direct Expansion Water Coolers • Heat Exchangers • Disseminator Pans.

WATCHDOG OF THE NATION'S FOOD SUPPLY
LARKIN COILS
519 MEMORIAL DR. S.E. • ATLANTA, GA.



Start Squirrel-Cage Motors THE MODERN WAY

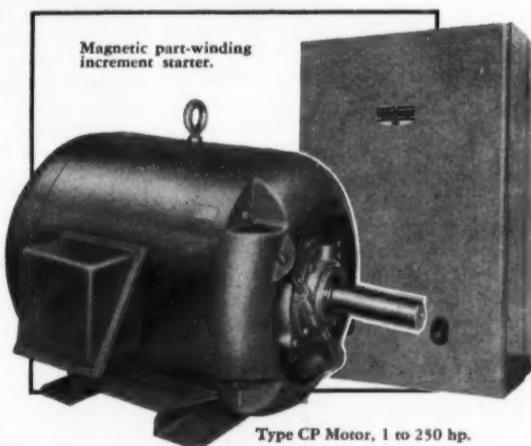


with the Wagner Increment Motor and Starter Combination

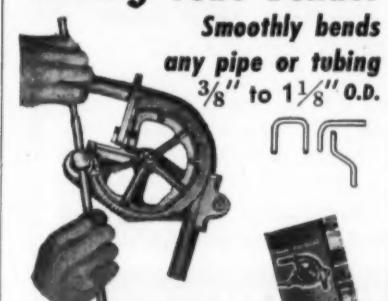
You benefit when you install a Wagner Increment Motor and Starter "package" because you get a most economical, highly efficient motor and starter combination that limits inrush of motor current to values that are acceptable for the distribution systems of most power companies.

Wagner two-step starter combinations are suitable for most applications. A three-step increment starter is available for applications calling for unusually low inrush of starting current.

Your nearby Wagner engineer will be glad to help you select the combination that meets your requirements. Call the nearest of our 32 branch offices, or write us.



Handy Tube Bender



Smoothly bends any pipe or tubing 3/8" to 1 1/8" O.D.
Just a twist of the wrist assures perfect, even, right-angle, U and offset bends. Save enough on ONE job to pay for your HANDY BENDER.

See your supply house—or write for free folder today.

HOLSCLOW BROS., INC.
428 N. WILLOW RD.—EVANSVILLE, INDIANA



M54-14

WAGNER ELECTRIC CORPORATION
6441 PLYMOUTH AVE., ST. LOUIS 14, MO., U.S.A.

BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

ELECTRIC MOTORS
TRANSFORMERS
INDUSTRIAL BRAKES
AUTOMOTIVE
BRAKE SYSTEMS—
AIR AND HYDRAULIC

INDUSTRIAL applications

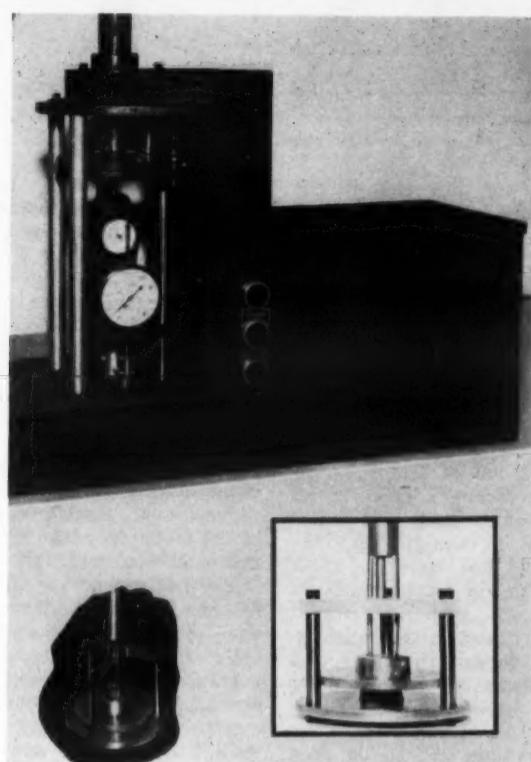


FIG. 5 shows equipment used for measuring deflection in rubber samples.

Refrigeration In Rubber Processing--

(Concluded from preceding page) in the Tenney chamber for one, two, four, seven, 14, or 21 days and the stiffness measured as at room temperature except that the Jolly balance is placed over a port in the top of the chamber and the chain lengthened to engage the samples inside.

The increase in stiffness is the difference between the cold-box reading and the room temperature reading.

The Cellular Rubber Compression-Deflection test is designed to compare deflection at -40° F. with that at room temperature.

A load in pounds sufficient to obtain 25% deflection of a 1.129 in. dia. by 0.5 in. thick (approximately) specimen is first applied to the sample at room temperature. The specimen is then placed in the cold box for five hours at a temperature of -40° F. At the end of this time the previously determined load is applied quickly while the specimen is still in the cold box and the deflection recorded immediately.

The percentage change in deflection, C, is calculated by use of the formula

$$C = \frac{D-E}{D} \times 100$$

where D is the deflection at room temperature and E the deflection at -40° F.

To carry out this test a special apparatus has been designed which permits the specimen to remain in the test chamber while the load is applied outside the chamber.

This equipment is shown in Fig. 5. The sample is placed on a fixed platform suspended through a port in the top of the "Sub-Artic" test chamber. At the end of five hours, a load is applied by operating a motor which drives a piston down upon the sample, compressing it (see inset). A force indicator and deflection gauge outside the chamber gives force and deflection readings.

TESTS TO DETERMINE YOUNG'S MODULUS IN FLEXURE

Tests for determining Young's Modulus in flexure are designed to measure the low temperature effects of (1) second order transition (vitrification) which is relatively independent of time of exposure to low temperatures, and (2) crystallization or other effects which are strongly dependent on time of exposure to low temperatures.

In these tests, provision is made to conduct tests inside the cold box and take readings outside. Samples 1/4 in. thick by 1 in. wide by 2 1/2 in. long are mounted on specimen supports as shown in Fig. 6.

Special apparatus (as shown in Fig. 7) is used to enable up to 24 specimens to be tested at once. This apparatus is placed in the cold box and the drive shaft mated with a section which extends through the cover of the box. The box is equipped with an observation window which enables the laboratory technician to rotate successive samples under a deflecting rod which also is manipulated from outside the chamber.

The deflecting or loading rod can be loaded from outside the chamber with weights which raise or lower the foot of the rod as it rests on samples in the chamber. The rod is counterbalanced (see Fig. 7) with a dead weight. A dial micrometer gauge calibrated

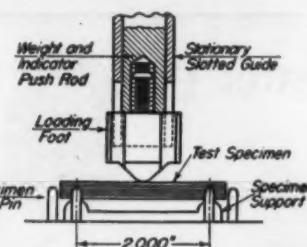


FIG. 6 shows specimen supports to allow tests to be conducted inside chamber while readings can be taken on the outside.

to 0.001 in. measures the travel of the rod as it is raised or lowered by adding or removing weights.

In determining Young's Modulus the loading foot is lowered to rest on the center of the specimen and the dial indicator reading noted. Next, the weight pan is loaded for 10 seconds with a weight sufficient to produce a deflection of 0.010 to 0.025 in. The weights are removed and after 10 seconds the dial indicator reading recorded as R₁.

The load is then reapplied and after 15 seconds the dial reading recorded as R₂. Young's Modulus in lb. per sq. in., E, can then be determined by the formula

$$E = \frac{L^3}{4wt^3} (R_2 - R_1)$$

in which L is the load in pounds in weight pan, 1 is the distance between the sample supports in inches, w is the width of the specimen in inches and t is the thickness in inches.

Young's Modulus is determined from data recorded at 70° F., 32° F., -40° F. and -70° F. (descending) and at 10° increments from -70° F. to 70° F. (ascending) when crystallization or other time effects are negligible. The box is stabilized at the given temperature for 15 minutes before taking readings. A.S.T.M., in method of Test D747-46, includes a nomogram for determining Young's Modulus from this data.

For detection of crystallization or other time effects, R₁ and R₂ readings are taken after maintaining the box at -4° F. for natural rubber or 32° F. for neoprene GN. These are approximately the temperatures for maximum rates of

crystallization. The temperature (with specimen inside the chamber) is maintained at -4° F. or 32° F. for 72 hours and then dial indicator readings are taken at -70° F. to 70° F. in 10° increments.

Values of E obtained with and without the 72-hour conditioning period are plotted against temperature. If the calculated modulus after the 72-hour conditioning period is considerably larger than before the 72-hour exposure, the presence of crystallization or other time effects is indicated.

These tests are enabling the company to supply manufacturers with vital information about the characteristics of elastomers under low temperature conditions.

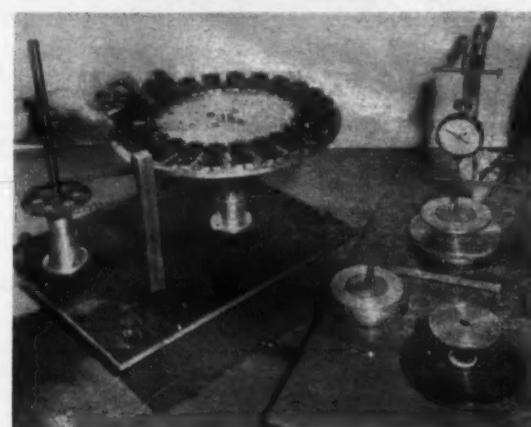


FIG. 7 illustrates special apparatus used to enable testing of up to 24 specimens at once. This equipment is placed inside the cold box and the drive shaft mated with a section which extends through the cover of the box.

ARE YOU SURE YOU'VE NEVER HAD TROUBLE WITH OIL?

A recent survey of refrigeration failures and their causes showed that oil was blamed in less than 0.1% of the cases. Moisture, expansion valves and strainers were thought to be culprits almost 20% of the time. On the surface, this looks good for refrigeration oils. But before you cross oil off your list of possible causes of trouble, let's take another look.

If moisture causes a failure, it has to get into the system somehow. Sloppy handling of oil or improper purging can cause moisture problems. But so can inferior refrigeration oils that haven't been properly processed.

Strainers, expansion valves, and capillaries shouldn't really be listed as the cause of failure if they're clogged. The real culprit is the stuff that is passing through them. Here again, inferior refrigeration oils that form sludge or contain too much wax are often to blame.

The best way to avoid a lot of call-backs is to use Suniso . . . the refrigeration oil that is used and recommended by most refrigeration manufacturers. Controlled from crude to can by oilmen, Suniso always assures you of both uniformity and high quality . . . it eliminates all your oil problems.

Sold Everywhere by Leading Refrigeration Wholesalers

SUNISO ADVANTAGES • provides adequate lubrication at all temperatures encountered in service • possesses a high degree of stability • won't throw out wax deposits under low temperatures • has extremely low moisture content • resists formation of corrosive acids and carbon under service conditions • separates readily from refrigerant—won't react adversely

SUNISO

REFRIGERATION OIL

A PRODUCT OF SUN OIL COMPANY

Did you know
you could get
COLD PLATES
like this?



MANY SHAPES
MANY SIZES
MANY METALS

"JOB TAILORED" Dean Cold Plates are the answer to tough refrigeration problems. You can get Cylinders, U's, Angles, Tanks, etc., made exactly in the size you need.

WRITE FOR TECHNICAL DATA BOOK
Dept. AC
Sterling 9-5400

DEAN PRODUCTS, INC.
1042 DEAN STREET • BROOKLYN 38, N.Y.

Refrigeration Problems and their solution

by Paul Reed

For Service and Installation Engineers



Paul Reed

Water Control Valves With Cooling Towers?

Part 2 and concluding instalment.

From the previous instalment, it will be seen that the water valve must pass about three times as much water in the hot summer weather as in the cool spring and fall weather. Nevertheless, the water valve must be large enough for the high rate of water flow required during the summer.

A water valve has a fixed orifice; that is, the hole in the water valve seat is always the same size. The rate of flow is regulated by how far off the seat the needle is lifted, and this in turn is controlled by the bellows that is actuated by the pressure in the condenser.

If the condenser pressure starts to drop, a spring pushes the needle toward the seat to restrict the water flow, and this causes the condenser pressure to rise. If the pressure starts to go too high—

above the pressure that the valve is set to maintain—the bellows pushes the needle far enough off the seat to permit a higher rate of water flow and reduce the head pressure. Thus the valve "throttles" to maintain a constant head pressure.

There is a point at which the needle is far enough off the seat that it ceases to have any effect on the amount of water flowing through the orifice. Raising the needle farther off the seat, above this point, makes no change in the rate of water flow. At this point, the valve is "wide open" and is passing the maximum amount of water of which it is capable.

WATER PRESSURE LIMITS WATER VALVE CAPACITY

When the valve is wide open, the only thing that can affect the rate of water flow through the fixed orifice is a change in water pressure. More accurately, it is the change in pressure difference on the two sides of the orifice, but since the outlet pressure varies so

slightly, it is the change in inlet water pressure that determines the rate of water flow through the orifice. If the inlet water pressure rises, more water flows through the valve; if it falls, less water flows through the valve.

Thus the maximum amount of water in gallons per minute (g.p.m.) that a wide open valve can pass depends upon the water pressure to the valve.

Water valves vary somewhat in design, but a typical water valve when wide open, will pass over twice as much water with a 50 p.s.i. water pressure across the valve as with a 10-lb. water pressure. This means that if only 10 p.s.i. water pressure is available to the valve, the valve will have to be very much larger in order to pass the same amount of water than if water pressure at 50 p.s.i. is available.

In most cities, the water pressure is usually 50 p.s.i. or more, so the water valve supplied on water-cooled units is usually of such a size that it will pass suffi-

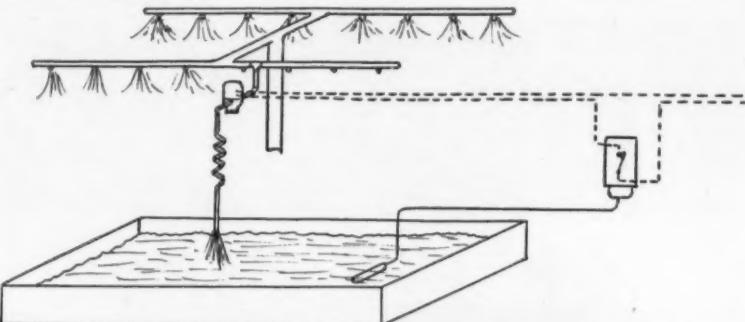


FIG. 1—Thermostatically controlled electric solenoid valve in by-pass from one branch of spray tree to water pan on cooling tower.

cient water for the unit if the water pressure is about 50 p.s.i. or above.

LARGER WATER VALVES REQUIRED WITH COOLING TOWERS

If this same water valve is used on a cooling tower, where only 10 p.s.i. water pressure is available, it would be far undersize, and would have to be replaced with a much larger valve. These valves are not necessarily correct in all cases; conditions vary and water valves vary in design, but the above figures are cited to show that with the low water heads on cooling towers with centrifugal pumps, the water valves must be very much larger than for the same condensing units supplied for use on city water systems having high water pressure.

If water valves are to be used on cooling tower systems, they must be carefully selected on the basis of the ratings of the manufacturer of the water valves. For example, one manufacturer of water valves show that his $\frac{1}{2}$ -in. valve has a maximum capacity of almost 12 tons with a 50-lb. drop across the valve; but that same valve has a capacity of only about $5\frac{1}{2}$ tons with a 10-lb. pressure drop across the valve.

These capacities are based on the valves being wide open, with a 15° temperature rise through the condenser, and the water absorbing 240 B.t.u. per minute from the condenser per ton of refrigeration, which is normal for a condensing unit used on an air conditioner.

One method that has been used is to apply two small water valves in parallel, instead of one large one, with one set to maintain a little lower head pressure than the other. As long as the one valve can maintain the lower head pressure, it alone will open, and the other will open only if the head pressure goes above what the one valve can maintain.

From the foregoing, it will be seen that, although water valves can be used on water-cooled condensers supplied from cooling towers, it is not a simple matter. Manufacturers' data on their water valves should be carefully studied; in fact, it would be well to get in touch with the manufacturer, give him the requirements as to heat loads to be removed from the condenser, temperatures of the cooling water from the tower in the summer and in the spring, type of pump and pressures available for the water valve, and get his specific recommendations and selection of the valve to use.

WARMER WATER FROM THE TOWER

Instead of trying to maintain a constant head pressure by the use of water valves, the same effect can be obtained by supplying the condenser with water at a higher temperature. To do this, the water

from the tower would have to be at about the same temperature in spring and fall, even with reduced load on the tower, as in the summer with full load.

In the case of forced draft towers, this can often be done simply by cutting off the fan on the tower. With no forced air circulation of air, much less of the water will be evaporated and consequently much less heat removed. The capacity of the tower will be reduced to more nearly match the reduced load; also the temperature of the water from the tower and to the condenser will be raised.

The fan can be cut off manually by means of a hand switch, or it can be cut off and on automatically according to the water temperature. A remote bulb thermostat of the type commonly used in refrigeration work that closes on rising temperature and opens on falling temperature can be used. It can be set for whatever temperature is necessary to provide the water-cooled condenser with warm enough water to assure normal head pressures. The bulb of the temperature control should be placed in the water in the pan of the tower.

In case the capacities of the tower and of the unit are badly out of balance, for example only one 3-ton conditioner in use on a 15-ton tower, there might still be enough natural draft even with the fan off, to keep the capacity of the tower much greater than that of the one unit. In such extreme cases further measures would have to be taken as described below.

REDUCING THE WETTED SURFACE OF THE TOWER

The method of cutting off the fan and thus reducing the amount of air circulation through the tower is not applicable to natural

(Concluded on next page)

ROTARY SEAL

Replacement Units

Available in a wide size range for Commercial, Semi-Commercial, Air Conditioning and Home Refrigerators.

EASY TO INSTALL * ECONOMICAL



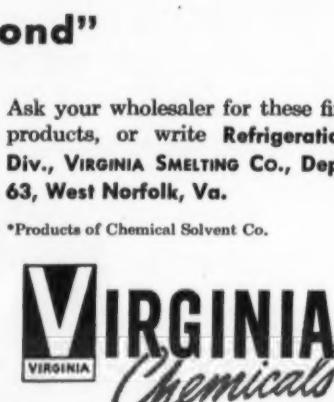
2026 NORTH LARRABEE STREET
CHICAGO 14, ILLINOIS, U.S.A.

SUPER-FLO FILTER-DRYER



MOLDED REMCAL DRYING
FIBERGLAS DEPTH FILTERING
Check Super-Flo's amazing low price, for both original equipment and replacement, against ordinary driers which do not have Super-Flo molded drying elements, massive fiber-glass depth filters and spun-end copper shells. Available to the trade through wholesalers everywhere.

REMCO INCORPORATED
ZELIENOPLE, PA.



ESOTOD • KINETIC CHEMICAL'S "FREON" REFRIGERANTS
V-METH-L • CAN-O-GAS • PERMAGUM • PRESSTITE TAPE
SOLVEX PRODUCTS • SUNISO REFRIGERATION OILS

Available in Canada and many other countries

MARSH Instruments

THE SERVICEMAN LINE of Testing Gauges, Testing Thermometers, Timers, etc.
PRESSURE GAUGES and Dial Thermometers for all services.
MARSH-ELECTRIMATIC, Water Regulating Valves, Solenoid Valves,
MARSH INSTRUMENT COMPANY
Sales Affiliate of Jas. P. Marsh Corporation
Dept. D, Skokie, Ill.

Water Control Valves?--

(Concluded from preceding page)
draft towers. There is a method that can be and has been used successfully with natural draft towers.

This method reduces the capacity of the tower, that is, raises the temperature of the water from the tower by reducing the amount of water to the tower, instead of reducing the air circulation.

Most cooling towers, whether the forced draft or natural draft types, have two or more branches of the spray tree. A tee is installed in one of the branches of the spray tree and a valve attached to this tee. From this valve a line is run to the water pan of the tower.

When the valve is opened, the water to the branch of the spray tree to which the valve is connected, is by-passed to the water pan and no water is sprayed from the nozzles of that branch. Consequently, the effective wetted area and the capacity of the tower are reduced, so the water from the tower will be warmer.

Some care must be used in adjusting the restriction of the by-pass line from the branch of the spray tree to the pan. Without some restriction, the water pressure in the other branch or branches of the spray tree will be so low that their spray nozzles will not function properly.

If the valve in the by-pass line is a hand valve, it can be regulated to rob the one spray tree of water but leave enough water pressure in the other branch or branches.

THERMOSTATICALLY CONTROLLED BY-PASS

Instead of a hand valve that has to be opened and closed manually to regulate the water temperature of the water from the tower, an electric solenoid water valve can be used, actuated by a bulb type thermostat with its bulb in the water in the pan of the tower.

This thermostat should be of the type that closes on a reduction of temperature and opens on a rise of temperature. This is a "heating type" thermostat and just the reverse of the thermostat usually used in refrigeration work that closes on a rise in temperature and opens on a reduction of temperature.

The thermostat should be set to maintain a temperature of the water in the pan that is necessary to reduce the capacity of the condensing unit to more closely match the heat load.

On some cooling towers it may be necessary and practical to provide by-pass lines, each with an electric solenoid valve and thermostat, to two branches of the spray tree, with one thermostat set for a somewhat higher water temperature than the other.

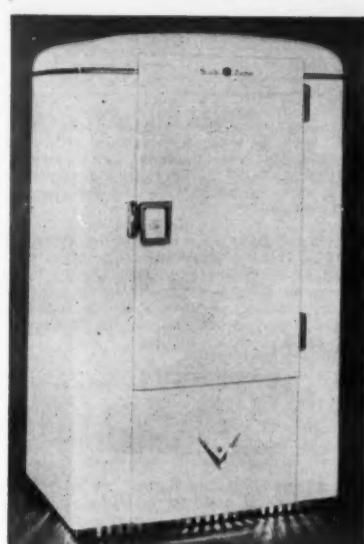
Since the electric solenoid valve cannot be modulated so as to adjust the restrictive effect of the by-pass, the line from the valve to the pan should be small enough in diameter to provide the necessary restriction. Copper tubing of $\frac{3}{8}$ -in. o.d. wound into a close coil can be used to advantage.

REDUCING TOWER CAPACITY MAY NOT BE ENOUGH

It must be pointed out again,

What Was New

At the Summer Marts



FEATURING CONSTRUCTION DESIGNED to maintain lowest possible temperatures is this 18-cu. ft. Sub-Zero all-aluminum upright freezer model. All shelves are refrigerated, and there are also coils in the top and bottom of the food compartment liner. Inner doors are used. Newly styled hardware is mounted so that it does not break cabinet seal, thus keeping moisture-laden air from infiltrating into freezer interior.



"PROMOTIONAL" MODEL CARRYING no list price is this 9.8-cu. ft. household refrigerator introduced by the Hotpoint Co. at the Summer Markets. It has "Capri" color styling, across-the-top freezer, and two door shelves.



FEATURING STREAMLINED compact design this new Ben-Hur 18-cu. ft. upright home freezer, which is now being shipped, contains over $19\frac{1}{2}$ sq. ft. of fast-freezing shelf space. The freezer which has a storage capacity of 630 lbs. of frozen foods fits into a floor space only 36 in. wide by 30 in. deep. Height of the cabinet is $69\frac{1}{2}$ in. Several innovations claimed for the model include: new inner door shelves providing extra storage space for juices; pie rack directly below top shelf coils; and new dual purpose utility shelf which serves as bottom compartment door and easy-tilt shelf when placing food in freezer.

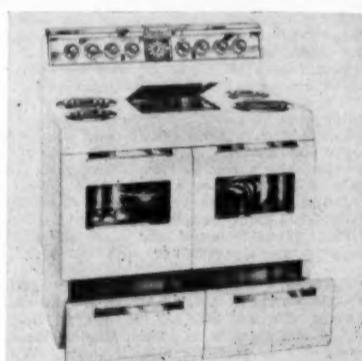
Glenn Named Wholesale Mgr. of Gen. Refrigerators

NEW YORK CITY—Appointment of Bernard R. Glenn as wholesale manager and his election as secretary of General Refrigerators Corp. were announced recently by Martin Spector, president of the firm.

Glenn will have charge of four wholesale district salesmen who will call on the trade in and around New York City, the head of the commercial refrigeration distributorship added.

Bailey Corp. Gets Charter

NEW ORLEANS—Bailey Corp., refrigeration and air conditioning, 427 Esplanade Ave., has been granted charter of incorporation listing capital stock of \$20,000.



TOP MODEL IN THE 40-in. electric range series introduced by RCA Estate Appliance Corp. is this model 5540. New styling and insulation mark the model, which also has such features as griddle with flush-to-top cover, "Bar-B-Kewer" meat oven, and throw-away aluminum burner bowl inserts. Controls on the high mantel back each have Tel-u-Lite indicator. It is priced at \$399.95. Six other models are priced downward to \$199.95.

RANCO DUAL PRESSURE CONTROL

... safety-guarantee for your air conditioning service

Your customers will appreciate the protection of this Dual Pressure Control . . . and here's why:

High pressure cut-out with non-adjustable high pressure limit stop safeguards the system—prevents service adjustment above the maximum safe operating pressure. Low pressure safety cut-out prevents pulling air into the system with excessive low pressure operation.

In either event, the system shuts down until restarted with the manual reset. Both high and low pressure ranges are independently adjustable.

Add up those features and you'll understand why Underwriters Laboratories requires this type of control on all hermetically sealed air conditioning systems . . . why both you and your customers will consider it well worth the few minutes it takes to install. Make your next job a Ranco Dual Pressure Control installation . . . now available in Types 012-1593, 012-1594 and 012-1595 . . . a safety-guarantee for your air conditioning customers.

NEMA Refrigerator Sales In March Hit 37,089; April 28,895

Summary for March, 1954 (15 Companies)

Complete Electric Household Refrigerators Only—Sales by Sizes—Units			
Sizes	Domestic	Canadian	Foreign
1. Less than 4 cu. ft.	1,947	...	229
2. 4 cu. ft.	34	1	2
3. 5 cu. ft.	3,226	2	616
4. 6 cu. ft.	19,021	679	2,093
5. 7 cu. ft.	68,466	2,468	7,482
6. 8 cu. ft.	56,384	721	3,710
7. 9 cu. ft.	54,417	2,125	2,272
8. 10 cu. ft.	66,784	1,114	2,501
9. 11 cu. ft.	33,256	414	677
10. 12, 13 cu. ft. and up.	303,535	7,524	19,582
Total	303,535	7,524	330,641

Refrigerators Having Two Exterior Doors (All Sizes Included In Above) . . .

36,394 35 660 37,089

Summary for April, 1954 (15 Companies)

Complete Electric Household Refrigerators Only—Sales by Sizes—Units			
Sizes	Domestic	Canadian	Foreign
1. Less than 4 cu. ft.	1,572	...	71
2. 4 cu. ft.	59	28	87
3. 5 cu. ft.	1,889	2	3,764
4. 6 cu. ft.	14,350	302	2,390
5. 7 cu. ft.	62,994	1,976	7,947
6. 8 cu. ft.	43,131	1,567	4,996
7. 9 cu. ft.	49,705	3,301	1,940
8. 10 cu. ft.	45,609	875	1,716
9. 11 cu. ft.	30,079	964	1,564
10. 12, 13 cu. ft. and up.	249,388	8,987	22,525
Total	249,388	8,987	280,900

Refrigerators Having Two Exterior Doors (All Sizes Included In Above) . . .

27,540 336 1,019 28,895

Summary for First Four Months, 1954 (14-16 Companies)

Complete Electric Household Refrigerators Only—Sales by Sizes—Units			
Sizes	Domestic	Canadian	Foreign
1. Less than 4 cu. ft.	6,180	...	544
2. 4 cu. ft.	185	25	265
3. 5 cu. ft.	17,076	108	6,206
4. 6 cu. ft.	87,552	1,575	7,891
5. 7 cu. ft.	288,386	6,617	27,183
6. 8 cu. ft.	230,944	4,207	15,188
7. 9 cu. ft.	188,077	7,084	7,561
8. 10 cu. ft.	222,834	4,265	7,418
9. 11 cu. ft.	146,202	1,883	4,518
10. 12, 13 cu. ft. and up.	1,187,436	25,764	76,564
Total	1,187,436	25,764	1,289,764

Refrigerators Having Two Exterior Doors (All Sizes Included In Above) . . .

139,908 904 3,463 149,375

Participating companies: Admiral Corp.; Appliance & Electronics Div.; Avco Mfg. Corp. (Crosley & Bendix Divs.); Deepfreeze Appliance Div.; Motor Products Corp.; Frigidaire Div.; General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint Co., Div. of General Electric Co.; International Harvester Co.; Kelvinator Div.; Nash-Kelvinator Corp.; Norge Div.; Borg-Warner Corp.; Philco Corp., Major Appliance Div.; Quicfrez, Inc. (formerly Sanitary Refrigerator Co.); Seeger Refrigerator Co.; Servel, Inc.; Westinghouse Electric Corp.; A. J. Lindemann & Hoverson Co. (out 2-1-54).



Mouldings are Silent Salesmen

JOHN LEES

MOULDINGS, STAMPINGS, ASSEMBLIES. Complete Facilities for Buffing, Electrolytic Polishing, Welding, Forming and Aluminum Anodizing.

Mouldings by John Lees do a steady job of selling both before and after the sale is made. Stainless steel remains handsome, keeps your products looking good all the time. Let mouldings by John Lees help sell your product and keep it selling. Write for catalog.

JOHN LEES

DIVISION OF THE SERRICK CORPORATION
Kilgore Avenue, Muncie, Indiana, U.S.A.

**RANCO DUAL PRESSURE CONTROL**

... safety-guarantee for your air conditioning service

Your customers will appreciate the protection of this Dual Pressure Control . . . and here's why:

High pressure cut-out with non-adjustable high pressure limit stop safeguards the system—prevents service adjustment above the maximum safe operating pressure. Low pressure safety cut-out prevents pulling air into the system with excessive low pressure operation.

In either event, the system shuts down until restarted with the manual reset. Both high and low pressure ranges are independently adjustable.

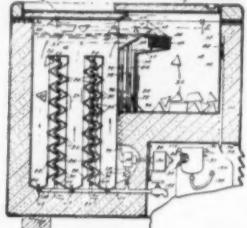


WORLD'S LARGEST MANUFACTURER OF REFRIGERATION CONTROLS

PATENTS

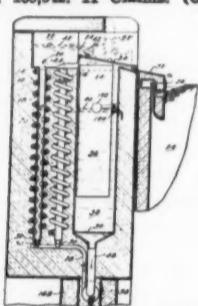
Week of March 16

2,672,016. ICE-MAKING AND REFRIGERATING SYSTEM. Glenn Muffly, Springfield, Ohio. Application Sept. 20, 1948, Serial No. 50,101. 18 Claims. (Cl. 62-4.)



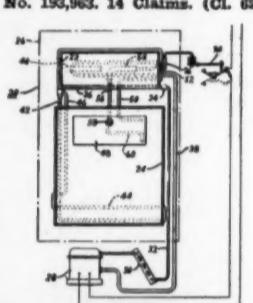
1. In an ice-making apparatus, an ice-making chamber, a compartment for storage of small pieces of ice, a pump for providing water agitation for the purpose of producing clear ice, a tube connected with said pump, a venturi connected with said tube, and a second tube leading from a lower portion of said ice storage compartment to the side inlet of said venturi for the purpose of lifting water from the bottom of said storage chamber and delivering it to said ice-making chamber.

2,672,017. ICE-MAKING AND REFRIGERATING SYSTEM. Glenn Muffly, Springfield, Ohio. Application Aug. 12, 1949, Serial No. 109,942. 11 Claims. (Cl. 62-4.)



1. In an ice-making apparatus, a centrifugal pump comprising a housing and an impeller, means forming an upwardly directed discharge passage for said pump, means forming a downwardly directed inlet passage to said pump, and drain means associated with said pump, the last said means and said passages being so constructed and arranged as to provide for simultaneously draining all liquid from said housing and from both of said passages.

2,672,018. TWO-TEMPERATURE REFRIGERATING APPARATUS. James W. Jacobs, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Nov. 3, 1950, Serial No. 193,963. 14 Claims. (Cl. 62-4.)



1. Refrigerating apparatus including an insulated household refrigerator cabinet having a freezing compartment and a food compartment, a refrigerating system including separate evaporating means for separately cooling each of said compartments and a liquefying means, a snap action valve means connected to and in series with the separate evaporating means for the food compartment to control the flow of refrigerant, said valve means including a pressure responsive means exposed to the pressure within said separate evaporating means for the food compartment and operably connected to said snap action valve means and proportioned for opening said valve means upon the attainment of a predetermined high pressure corresponding to a temperature above freezing and for closing said valve means upon the attainment of a predetermined low pressure corresponding to a temperature below freezing.

Handy Way To Subscribe

Receive the greatest trade paper in the industry—AIR CONDITIONING & REFRIGERATION NEWS. Published every week. Brings you latest news and vital information on air conditioning, commercial and industrial refrigeration, home freezers, and household refrigeration; manufacturing, contracting, distributing, retailing, and servicing. Only \$6.00 per year, 52 issues.

Fill in coupon and mail today

AIR CONDITIONING & REFRIGERATION NEWS
450 West Fort Street, Detroit 26, Michigan

Gentlemen: Send the NEWS for one year.

\$6 enclosed Bill me Bill the company

Name _____

Company _____

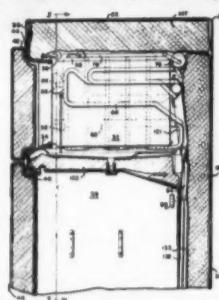
Street _____

City _____ Zone _____ State _____

My line of business is _____

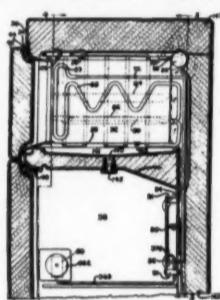
7-54

2,672,019. TWO-TEMPERATURE REFRIGERATING APPARATUS. Edmund F. Schwaller and Richard S. Gaugler, Oakwood, Ohio, assignors to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application April 28, 1951, Serial No. 223,532. 4 Claims. (Cl. 62-4.)



1. Refrigerating apparatus comprising an insulated cabinet containing a frozen food compartment and a separate unfrozen food compartment thermally isolated from the frozen food compartment, said unfrozen food compartment being enclosed by a liner, refrigerating means for cooling the walls of said liner at a temperature above freezing and for cooling said frozen food compartment to a temperature well below freezing, a secondary refrigerant circuit having a condensing portion in contact with the refrigerating means for the frozen food compartment and having an evaporating means directly within the unfrozen food compartment maintained at a temperature below the temperature of the walls of said liner, and means providing a substantial moisture vapor barrier between the walls of said liner and the frozen food compartment and the refrigerating means for said frozen food compartment and in the insulation surrounding the frozen food compartment thereby causing the migration of moisture vapor in and about the food compartment to the evaporating means of said secondary circuit.

2,672,020. TWO-TEMPERATURE REFRIGERATING APPARATUS. Clifford H. Wurtz, Oakwood, and James W. Jacobs, Dayton, Ohio, assignors to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application April 28, 1951, Serial No. 223,550. 16 Claims. (Cl. 62-4.)



1. Refrigerating apparatus comprising: a cabinet; a cycling refrigerant liquefying means in said cabinet; a frozen food compartment in said cabinet to be maintained substantially below 32° F. and adapted to be maintained uninterruptedly below 32° F. without defrosting for long periods of time, such as several months, independently of the cycling of said refrigerant liquefying means; an unfrozen food compartment to be maintained substantially above 32° F. in said cabinet; insulation for said compartment including a substantial heat transfer barrier between said compartments; a freezing evaporator in heat exchange with said frozen food compartment; a frosting and defrosting evaporator inside said unfrozen food compartment; refrigerant flow connections providing a circuitous series connection from said refrigerant liquefying means first to said freezing evaporator, thence to said frosting and defrosting evaporator, thence back to said refrigerant liquefying means; the refrigerant connections between the freezing evaporator and the frosting and defrosting evaporator being open and substantially unrestricted, and a thermostatic cycling control having a thermally sensitive element in direct intimate contact with said frosting and defrosting evaporator and having cycling means for starting and stopping said liquefying means, respectively when the temperature of said frosting and defrosting evaporator rises above 32° F. and when it falls below the temperature to be maintained in said frozen food compartment; the combined holdover capacity of said frozen food compartment and said freezing evaporators being sufficiently great in relation to the holdover capacity of said frosting and defrosting evaporator to prevent the temperature of said

U. S. Government Contracts Procurement Information

DEPARTMENT OF DEFENSE

Description Director of Procurement and Production, Wilkins Air Force Depot, Shelby, Ohio Item 1—Air conditioner 394

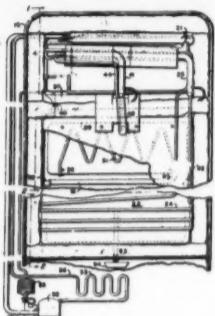
Mil-A-7647.
Item 1A, spare parts for Item 1.
Item 2, engineering data.
Item 3, maintenance data.

33-602-54- 21 Jul 54
3087Q Prime Class

VETERANS ADMINISTRATION
Procurement Division Supply Service, Veterans Administration, Washington 25, D. C.
Cooling unit. 4 ea. A7 19 Jul 54

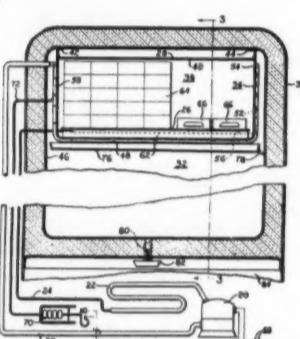
frozen food compartment from rising above 32° F.

2,672,021. DEFROSTING REFRIGERATING APPARATUS. Francis J. Batacak, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application April 28, 1951, Serial No. 223,571. 8 Claims. (Cl. 62-4.)



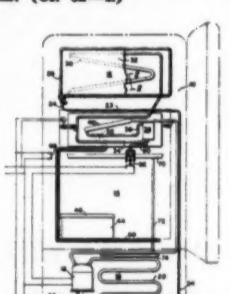
1. In an air conditioning unit, the combination of a first air passage, a second air passage, a refrigeration system including a first heat exchange member in the first passage and a second heat exchange member in the second passage, means for directing a stream of air through the first passage, means for directing a second stream of air through the second passage, means to place a hygroscopic medium in heat exchange relation with the first member and in heat exchange relation with the first air stream to remove moisture therefrom, means for supplying at least a portion of the diluted hygroscopic medium to the second passage, means in the second passage to place the diluted hygroscopic medium in heat exchange relation with the second member and in heat exchange relation with the second air stream to transfer moisture thereto thereby concentrating the medium, and means for returning concentrated medium to the first passage, and means to evaporate moisture in the air stream leaving the first heat exchange member.

2,672,022. MULTICOMPARTMENT REFRIGERATING APPARATUS. James W. Jacobs, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Oct. 24, 1951, Serial No. 253,901. 6 Claims. (Cl. 62-4.)



1. In combination, an insulated refrigerator cabinet, a freezing container wall portions exposed to the atmosphere within said cabinet, said metal wall portions being provided with refrigerant passages, an extensive flat refrigerated plate within said freezing container for supporting ice trays and frozen food, the edges of said flat plate being spaced from the container wall portions, means for supplying liquid refrigerant first to said plate and thence to the refrigerant passages of said exposed metal container wall portions, control means responsive to the temperature of said metal container wall portions operating upon a defrosting cycle for controlling said refrigerant supply means, and insulating means between said plate and said exposed metal container wall portions.

2,672,023. TWO-TEMPERATURE REFRIGERATING APPARATUS. James W. Jacobs, Dayton, Clifford H. Wurtz, Oakwood, and John H. Heidorn, Dayton, Ohio, assignors to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Feb. 23, 1952, Serial No. 272,962. 10 Claims. (Cl. 62-4.)

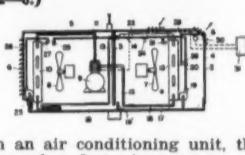


1. A household refrigerator including a cabinet having separated food compartments a first one of which is for storing foods in a frozen state and a second of which is for storing foods in an unfrozen state, refrigerating means for cooling said compartments, door means for said compartments, said refrigerating means comprising a first evaporator section arranged in thermal exchange relationship with the walls of the first of said compartments and a second evaporator section arranged in thermal exchange relationship with the air within the second of said compartments, refrigerant liquefying means, refrigerant flow connections for supplying liquid refrigerant from said refrigerant liquefying means to said first evaporator section and said second evaporator section in series flow relationship, a secondary refrigerating system having a condenser portion arranged in thermal exchange relationship with said second evaporator section and having an evaporator portion

arranged in thermal exchange relationship with at least one wall of said food compartment, and means for supplying heat to the air in said second compartment so as to artificially load said second evaporator.

2,672,024. AIR CONDITIONING SYSTEM EMPLOYING A HYDROSCOPIC MEDIUM.

William L. McGrath, Syracuse, N. Y., assignor to Carrier Corp., Syracuse, N. Y., a corporation of Delaware. Application Jan. 12, 1951, Serial No. 205,630. 6 Claims. (Cl. 62-6.)

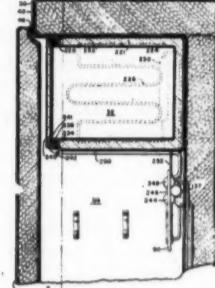


1. In an air conditioning unit, the combination of a first air passage, a second air passage, a refrigeration system including a first heat exchange member in the first passage and a second heat exchange member in the second passage, means for directing a stream of air through the first passage, means for directing a second stream of air through the second passage, means to place a hygroscopic medium in heat exchange relation with the first member and in heat exchange relation with the first air stream to remove moisture therefrom, means for supplying at least a portion of the diluted hygroscopic medium to the second passage, means in the second passage to place the diluted hygroscopic medium in heat exchange relation with the second member and in heat exchange relation with the second air stream to transfer moisture thereto thereby concentrating the medium, and means for returning concentrated medium to the first passage, and means to evaporate moisture in the air stream leaving the first heat exchange member.

2,672,025. TWO-TEMPERATURE REFRIGERATING APPARATUS. Sylvester M. Schwaller, Oakwood, Ohio, assignor to General Motors Corp., Dayton, Ohio.

1. Refrigerating apparatus including an

above freezing food compartment and a below freezing compartment to be maintained below a predetermined sub-freezing temperature, a thermal heat transfer



barrier between said compartments, a refrigerant liquefying means, a freezing evaporating means in heat exchange relation with said below freezing compartment and having its inlet connected to said liquefying means and having its outlet extending above a major portion of the evaporating space to prevent the gravity drainage of liquid refrigerant therefrom, a food compartment evaporating means in heat exchange relation with said food compartment, a liner surrounding the food compartment, said food compartment evaporating means being located inside of said liner within the food compartment, a secondary refrigerant circuit having an evaporating portion located outside of and in contact with the outer wall surface of said liner and having a condensing portion inside said liner in direct contact with said food compartment evaporating means with a refrigerant connection between said evaporating and condensing portions, an open substantially unrestricted connection connecting the outlet of said freezing evaporating means and the inlet of said food compartment evaporating means.

(To Be Continued)



COMPLETE SERIES!

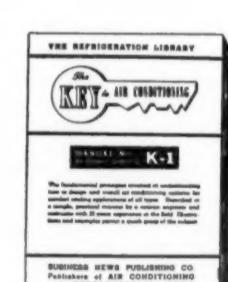
A modern series of 3 simplified, practical training manuals and reference books to help you with the layout and installation of comfort air conditioning.

The Key to Air Conditioning gives you a whole picture of comfort air conditioning in crystal clear language. It gives immediate answers to almost every problem in layout and installation. It covers the important details that add up to larger profits on your air conditioning jobs. The author, James LaSalvia, is an experienced engineer of 30 years with extensive background in teaching and writing.

MANUAL NO. K-1—The physics of air conditioning; use of charts; methods of ventilation; figuring air requirements; refrigeration problems in air conditioning; use of fans; methods of air distribution. Psychrometric chart included with book.

MANUAL NO. K-2—Sheet metal ducts (sizing methods, problems of design); discussion of air cleaning devices; heat transmission coefficients; problems and tables for figuring heat gain; air through cooling coils; selection of cooling coils, expansion valves, compressors, and water cooling coils.

MANUAL NO. K-3—General discussion of heating systems; selection of heating coils (air friction, condensation); description and operation of evaporative condensers; water cooling towers; automatic controls; piping refrigerant, water, and steam; and insulation problems.



IN 3 VOLUMES
\$2.00 Per Copy

CLIP AND SEND THIS HANDY ORDER FORM

Business News Publishing Co.
450 West Fort Street
Detroit 26, Michigan

7-554

Please send the following Key to Air Conditioning books.

K-1, \$2.00 each, copies. * check enclosed
K-2, \$2.00 each, copies. bill me
K-3, \$2.00 each, copies.

Name
Address
City Zone State
*Prepaid orders save shipping charges.

Templeton Represents Unarco

ATLANTA—John F. Templeton Co. here has been appointed sales representative in Georgia for "Unarco" heating and air conditioning units, it is announced.

The new line, designed for use in domestic, industrial, and commercial fields, is manufactured by the Union Asbestos & Rubber Co. of Chicago.

The Templeton company was organized here in 1949 and is currently headed by John F. Templeton, president.



HOME & FARM FREEZERS

"Stories of the Week"
In Handy Form

In response to hundreds of requests from AIR CONDITIONING & REFRIGERATION NEWS subscribers, the conductor of its "Inside Dope" column has collected and grouped his best "Stories of the Week." They are now available in convenient book-form for your reading and working pleasure. The book is entitled: "You'll Love This One."

Everyone will enjoy reading this book, we hope, but for the salesman—and for anyone who may be called upon to "say a few words" at a meeting—it should have especial appeal.

Here's why: this book of good stories you can tell is printed on thin paper, bound in flexible leatherette, and designed to fit neatly into your inside coat pocket.

While waiting in an anteroom to see Mr. Bigdome, the sales representative can thumb through it and pick out four or five pertinent jokes which are guaranteed to put his prospect in a good mood.

The man about to make a speech—or one who figures he may be asked to rise and shine extemporaneously—can consult it surreptitiously while the toastmaster is doing his stuff. Although it's jam-packed with grand tales, it isn't bulky. Rather, it's unobtrusive. Looks more like a leather wallet than a book.

You can be the life of the party if you've memorized some of the anecdotes in this book. Everybody loves a good story well told—and all the jokes in this book have been tested on tough audiences, both large and intimate, by the author.

Within its 236 thin-paper pages more than 200 sure-fire laughs are presented. You can use it profitably, and so can your friends. It's handsomely turned out, and will make an appreciated gift anytime.

PRICE: \$1.00

(Write for quantity discounts on 5 or more copies.)

Order directly from: Business News Publishing Co., 450 West Fort St., Detroit 26, Mich.

BUSINESS NEWS PUBLISHING CO.
450 W. Fort St., Detroit 26, Mich.

GENTLEMEN:
Please send me copies of "You'll Love This One" at \$1.00 per copy. Check enclosed. Please bill me.

Name _____
Address _____
City..... Zone..... State.....

7-5-54

NEMA Freezer Sales Total 52,114 for March
And 64,297 During April

Summary for March, 1954

Electric Farm and Home Freezers—Complete—Sales by Sizes—Units
Farm and home freezers complete with high and low side and cabinet, where 50% or more of the net cabinet capacity is designed for freezing and/or storage of frozen foods.

MARCH (22 Companies)					
Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total	
1. Less than 5 cu. ft.					
Chest Models	*	*	*	*	
Upright Models	†	†	†	†	
2. 5 and 6 cu. ft.					
Chest Models	*574	*...	*2	*576	
Upright Models	†	†	†	†	
3. 7 and 8 cu. ft.					
Chest Models	1,758	28	238	2,024	
Upright Models	†	†	†	†	
4. 9 and 10 cu. ft.					
Chest Models	2,819	97	120	3,036	
Upright Models	1,663	†162	†93	1,918	
5. 11 and 12 cu. ft.					
Chest Models	4,149	78	159	4,386	
Upright Models	5,954	42	153	6,149	
6. 12.5 to 17.4 cu. ft.					
Chest Models	14,025	446	243	14,714	
Upright Models	6,172	80	66	6,318	
7. 17.5 to 21.4 cu. ft.					
Chest Models	7,849	342	20	8,211	
Upright Models	3,616	51	65	3,732	
8. 21.5 to 30.4 cu. ft.					
Chest Models	981	22	26	1,029	
Upright Models	†1,019	‡...	‡2	†1,021	
9. 30.5 to 40.4 cu. ft.					
Chest Models	...	...	...	...
Upright Models	...	‡	‡	‡	
10. 40.5 to 50.4 cu. ft.					
Chest Models	...	...	...	...
Upright Models	...	...	...	...
11. 50.5 to 60.4 cu. ft.					
Chest Models	...	...	...	...
Upright Models	...	...	...	...
12. 60.5 cu. ft. and over					
Chest Models	...	...	...	...
Upright Models	...	...	...	...
Total Chest Models	32,155	1,013	808	33,976	
Total Upright Models	17,424	335	379	18,138	
Total All Models	49,579	1,348	1,187	52,114	

*Chest models for items 1 & 2 combined because of possible disclosure of individual company data.

†Upright models for items 1-2-3-4 combined because of possible disclosure of individual company data.

‡Upright models for items 8 & 9 combined because of possible disclosure of individual company data.

Summary for April, 1954

Electric Farm and Home Freezers—Complete—Sales by Sizes—Units

Farm and home freezers complete with high and low side and cabinet, where 50% or more of the net cabinet capacity is designed for freezing and/or storage of frozen foods.

Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total	
1. Less than 5 cu. ft.					
Chest Models	*	*	*	*	
Upright Models	†	†	†	†	
2. 5 and 6 cu. ft.					
Chest Models	*528	*	*4	*532	
Upright Models	†	†	†	†	
3. 7 and 8 cu. ft.					
Chest Models	3,105	185	116	3,406	
Upright Models	†	†	†	†	
4. 9 and 10 cu. ft.					
Chest Models	2,526	25	136	2,687	
Upright Models	†3,077	†	†51	†3,128	
5. 11 and 12 cu. ft.					
Chest Models	3,843	112	34	3,989	
Upright Models	6,240	135	101	6,476	
6. 12.5 to 17.4 cu. ft.					
Chest Models	19,116	395	280	19,791	
Upright Models	8,848	181	47	9,076	
7. 17.5 to 21.4 cu. ft.					
Chest Models	9,123	154	63	9,340	
Upright Models	3,162	21	27	3,210	
8. 21.5 to 30.4 cu. ft.					
Chest Models	1,248	72	18	1,338	
Upright Models	†1,318	‡	‡6	†1,324	
9. 30.5 to 40.4 cu. ft.					
Chest Models	...	...	...	...
Upright Models	...	‡	‡	‡	
10. 40.5 to 50.4 cu. ft.					
Chest Models	...	...	...	...
Upright Models	...	...	...	...
11. 50.5 to 60.4 cu. ft.					
Chest Models	...	...	...	...
Upright Models	...	...	...	...
12. 60.5 cu. ft. and over					
Chest Models	...	...	...	...
Upright Models	...	...	...	...
Total Chest Models	39,489	943	651	41,083	
Total Upright Models	22,645	337	232	23,214	
Total All Models	62,134	1,280	883	64,297	

*Chest models for items 1 & 2 combined because of possible disclosure of individual company data.

†Upright models for items 1-2-3-4 combined because of possible disclosure of individual company data.

‡Upright models for items 8 & 9 combined because of possible disclosure of individual company data.

Four-Month NEMA Freezer Sales Hit 216,022

Electric Farm and Home Freezers—Complete—Sales by Sizes—Units

Farm and home freezers complete with high and low side and cabinet, where 50% or more of the net cabinet capacity is designed for freezing and/or storage of frozen foods.

Sizes	Domestic	Canadian	Foreign	Total
1. Less than 5 cu. ft.	*	*	*	*
Chest Models	...	...	...	...
Upright Models	†	†	†	†
2. 5 and 6 cu. ft.				
Chest Models	2,317	*	24	2,341
Upright Models	†	†	†	†
3. 7 and 8 cu. ft.				
Chest Models	8,945	305	637	9,887
Upright Models	†	†	†	†
4. 9 and 10 cu. ft.				
Chest Models	11,257	144	438	11,839
Upright Models	4,852	164	185	5,201
5. 11 and 12 cu. ft.				
Chest Models	14,826	352	387	15,585
Upright Models	22,956	250	516	23,722
6. 12.5 to 17.4 cu. ft.				
Chest Models	59,365	1,229	743	61,337
Upright Models	27,669	397	312	28,378
7. 17.5 to 21.4 cu. ft.				
Chest Models	32,492	824	135	33,451
Upright Models	16,068	103	144	16,315
8. 21.5 to 30.4 cu. ft.				
Chest Models	4,054	144	51	4,249
Upright Models	13,728	19	19	13,737
9. 30.5 to 40.4 cu. ft.				
Chest				

Food Plan Probe--

(Concluded from Page 1, Col. 5) legislative action to curb abuses in food plan selling.

The arrested salesman is Jack R. Zallan, representing Pay Less Food Plan, Inc. After pleading innocent to the second degree forgery charge, Zallan was released on \$1,000 bond by Judge John S. Conable.

Zallan's arrest was a direct result of an investigation and report presented to Justice George T. Vandermeulen here on June 10. The jurors returned four sealed indictments but, since three remain to be served, it is not known if they are tied in with the inquiry.

The salesman is charged specifically with forging the name of Mrs. Mildred Perkins of 101 Borden Ave., Perry, to a freezer sales contract signed by Mr. and Mrs. Thomas Rice.

District Attorney Hanley said Mrs. Perkins, mother of Rice, was asked to be a co-signer of the sales and instalment plan contract. The indictment charges that after she refused, Zallan signed her name to the pact.

While admitting that some food plans are being sold on a "straight forward basis," Hanley declared that the public needs protection.

Typical complaints follow:

Some buyers are being pressured into signing contracts that they have not read, while others are signing blank contracts and promissory notes.

Some salesmen are trying to collect phony down payments.

Some salesmen suggest that groceries as well as meats can be purchased at wholesale prices and have even included cigarettes in the initial order to deceive.

Some salesmen charge an extra \$6 on food sales to insure prompt instalment payments.

Hanley opined that some of these malpractices could be eliminated by the banks that finance the sales.

Another complaint from food plan purchasers is short weight on the meats they receive.

"I'd like to see the legislature require all meats be sold on a net weight basis," Hanley asserted. "Supermarkets do it on their pre-packaged meat and so can others. Weight, cut, unit price, and cost should be labeled."

Hanley indicated that he is making tape recordings of some of the complaints for use when an attempt is made to get legislation.

New Du Pont Plant To Increase Production of 'Freon 22' for Wider Use

WILMINGTON, Del.—Plans for construction of a new plant on the site of du Pont's Louisville, Ky. Works for increase in the manufacture of "Freon-22" was announced recently by the company's "Kinetic" Chemicals Div.

Construction of the new facilities, augmenting those at Deepwater Point, N. J., and designed to meet adequately the refrigeration industry's needs for many years, will begin this summer under the direction of the company's engineering department.

Completion is scheduled for early fall of 1955.

Capacity of the plant was not disclosed, but the company said it will be based on long-range estimates of the need for "Freon-22" as a refrigerant and aerosol propellant, and as an intermediate in the manufacture of its "Teflon" tetrafluoroethylene resin. The new Louisville plant for "Freon-22" will be of the most modern open-type construction, with central controls.

"Freon-22" has been used in industrial refrigeration applications since 1941. In the last two years, however, it has been used widely in home refrigerators, freezers, and air conditioning units. A major advantage of "Freon-22" is its increased refrigeration capacity, which permits smaller mechanical units in home equipment.

The Louisville plant represents du Pont's third major expansion of refrigerant-propellant manufacturing facilities in the last year. Expansions at its Deepwater Point and East Chicago, Ind. plants were completed at an earlier date this year.

United Cork Expands Manufacturing Operations

KEARNEY, N. J.—United Cork Cos. have announced that they have expanded their manufacturing operations by acquiring facilities in Wilmington, Del. for the production of cork pipe covering and cork fitting covers.

Prompt shipments of these products are available from the Wilmington site, which will operate as a division of United Cork Cos.

Westinghouse Engineering Post Goes To Yoxsimer

MANSFIELD, Ohio—Appointment of O. H. Yoxsimer as manager of refrigeration engineering

at the new Westinghouse Electric Appliance Div. plant in Columbus, Ohio, was announced here recently by J. H. Ashbaugh, vice president of the division, and Milton Kalischer, manager of engineering at the Westinghouse plant in Springfield, Mass.

In his new position, Yoxsimer will be responsible for all phases of refrigerator-freezer engineering, both units and cabinets, in the Columbus plant. He will report to Kalischer.

A graduate of Ohio Northern university, he joined Westinghouse in 1927 in the time study department. On succeeding assignments he worked in the engineering department as a design engineer on refrigeration cabinets, as section manager for refrigeration cabinet engineering, and in 1948 was appointed manager of cabinet engineering at the Appliance Div. headquarters plant located in Mansfield.

Hoefle said the Dallas water department knows that evaporative coolers take a great deal of water because many of them do not have recirculating pumps and water is wasted.

Hoefle said the Dallas water department knows that evaporative coolers take a great deal of water because many of them do not have recirculating pumps and water is wasted.

Dallas Power & Light Co. estimates there are 144,000 evaporative coolers in use in Dallas. When the first water restriction ordi-

Co-op Water Consumption Study--

(Concluded from Page 1, Col. 5) using a daily average of 118,000,000 gals. On the days of the showers, consumption dropped to 60,000,000 gals.

"Because of the showers," Hoefle said, "there was no sprinkling, and many air conditioners were shut down, especially the evaporative coolers which do not function in highly humid weather."

"We do not know how much of the drop was due to lack of sprinkling and how much to shut down of air conditioners. All we know is that the two had been taking 58,000,000 gals. of water a day."

Being undertaken simultaneously in Kansas City, Chicago, Cleveland, Atlanta, and Little Rock, as well as Dallas, the study will attempt to determine the water consumption attributable to each of the two uses, and what should be done to control the situation. Information will be exchanged by the water departments of the cities participating.

Hoefle said the Dallas water department knows that evaporative coolers take a great deal of water because many of them do not have recirculating pumps and water is wasted.

Dallas Power & Light Co. estimates there are 144,000 evaporative coolers in use in Dallas. When the first water restriction ordi-

nance was adopted by the city in the 1952 shortage crisis, it required that all evaporative coolers circulating more than 1,800 c.f.m. of air should have recirculating pumps.

That provision was dropped through an ordinance revision last year, with the city now requiring that air conditioning systems of more than 3 tons' capacity have recirculating systems if they use water.

Refrigeration Engineering Firm Uses Newspaper Ad To Boost Water Saver Sales

ALTOONA, Pa.—Caum Engineering Corp., engaged in the refrigeration and air conditioning business here for 20 years, made a bid for sales of water savers for air conditioning with a newspaper advertisement:

Copy stated: "Don't let the possibility of future water restrictions deter you from having comfort in your home, office, or plant. This can be done by three different plans:

1. Air-cooled condensers.
2. Cooling towers.
3. Evaporative condensers.

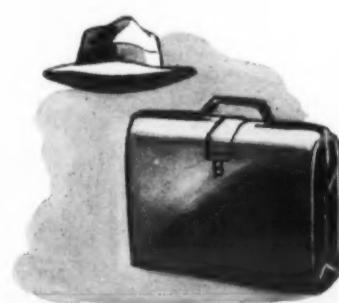
"Only one of these plans will suit your requirements. Be wise and have your installation engineered properly."

Sell More

In a little office under the stairs, in the Board of Directors suite, in the showrooms, at the counters, behind the desks and at the long meeting tables, men ponder a common objective—sell more.

Sell more—but where? Not where the demand is already created but where sales barriers must be broken. Not just where they are "buying", but where constructive sales effort can exact its reward—orders. Not just where everyone sells. Not just the beaten paths behind others and before only a few, but where volume goes unrecognized. Not where it's easiest, but where it takes drive and real sales ability.

Sell more—but how? Not with just the same old "canned" story, but with new approaches and eye-opening techniques featuring fresh material. Not with the parry and run style, but with the well planned and executed sales presentation that encourages discussion and decisions. Not with the eager hand and weak voice, but with a sound specific appraisal, a proposal and a straightforward request for dotted line action. Not with order "taking", but with order "ASKING".



WANTED... exclusive franchise DISTRIBUTORS for

COLD CACHE
FROZEN FOOD LOCKERS
"IN A WARM ROOM!"

... something entirely NEW in food retailing!

The greatest basic improvement in frozen food lockers in 20 years, backed by 7 years of engineering development and market-testing on the West Coast, now ready to go national. The "freeze the food—not the customer" idea brings consistent reports of 40% food sales boosts, building new regular food customers out of locker renters. Flexible design fits any floor plan, requires no capital outlay for added building, converts dead floor space into money. Every food store is a potential customer. Simple installation, self-operating, lifetime, trouble-free rental. Rugged, first quality construction throughout.

National distribution backed by aggressive promotion to help you sell, help operator rent.

Average installation self-liquidating within 5 years. The ideal addition for retail operators looking for the important competitive edge.

No more icy rooms, arctic clothing needed when locker-shopping now! Revolutionary COLD CACHE frozen food lockers make it as comfortable for the housewife as the food market itself.



HERE'S WHAT YOU'LL HAVE TO SELL:

Customer Appeal

The convenience and economy of locker cold storage plus the comfort and easy access of a food market. No for coats, no colds. Clean, modern lines.

Flexibility

Designed to fit existing floor plans, no special construction. Can be moved, added to, or rearranged to fit store growth.

Dependability

Proven in 3 years of installations in the Western States and Alaska. All bugs engineered out. Self-operating, no maintenance. Ruggedly built to last a lifetime. Temperature controlled within 2°; air-conditioned to filter out odors.

Profits

Builds regular store traffic, boosts bulk and frozen food sales. Operators report over 80% consistent rentals leading to self-liquidation within 5 years. Converts dead floor space into dollars.

VIRGIN TERRITORY AVAILABLE

Here's a golden opportunity to tie up with a really new, really advanced development. Inquiries regarding exclusive franchise dealer-distributor arrangements from any area, are invited. For complete information and case histories, outline your qualifications in a letter to:

ROOM-TEMP LOCKERS, INC.

Security Building, Tacoma 2, Washington

PLANTS IN DETROIT, MICHIGAN AND DECATUR, ALABAMA. SALES OFFICES IN PRINCIPAL CITIES.

EXPORT DEPARTMENT, 10 EAST 40TH STREET, NEW YORK 16, NEW YORK



WOLVERINE TUBE

DIVISION OF CALUMET & NEOLA, INC.

Manufacturers of Quality-Controlled Tubing

1413 CENTRAL AVENUE • DETROIT 9, MICHIGAN

XUM